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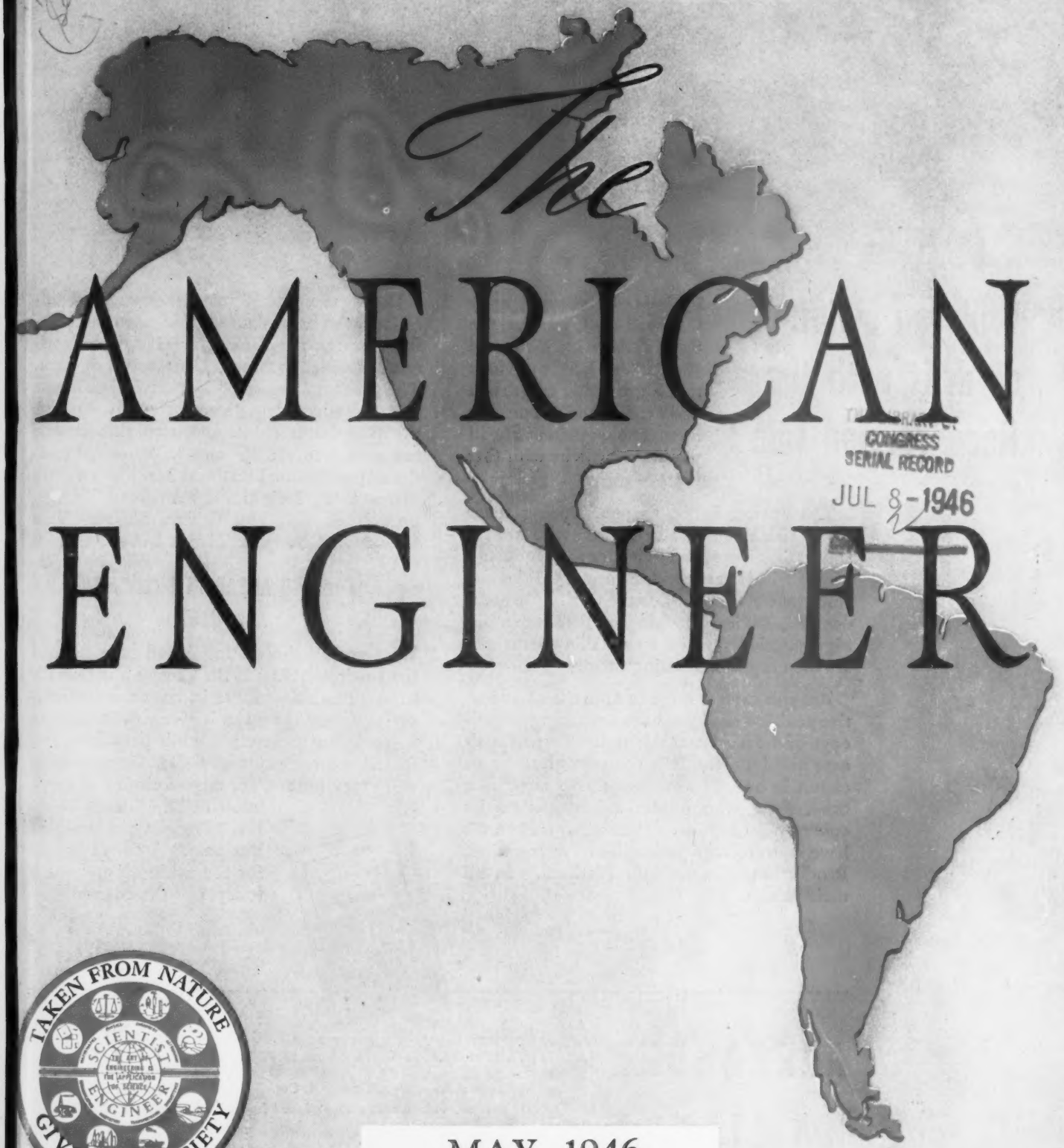

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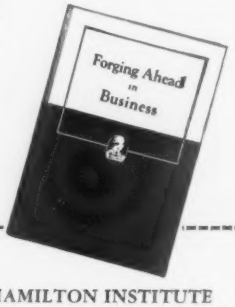

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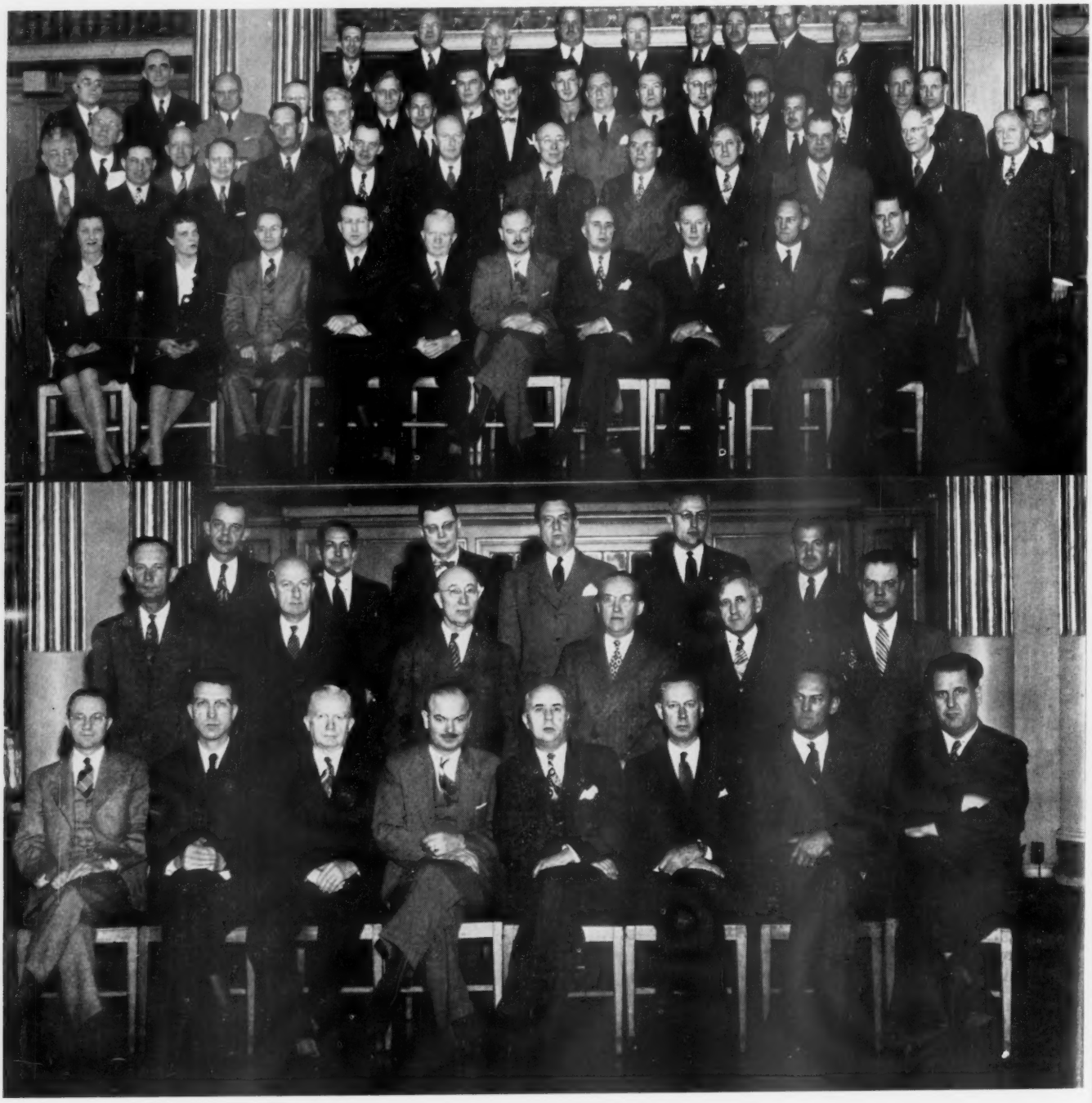
Group of State Presidents and Directors At Presidents' Conference, Columbus, Ohio, March 30th, 1946



The photograph next above shows the Presidents of State Societies of Professional Engineers in attendance at the Presidents Conference in Columbus, Ohio, March 30th. Reading left to right, front row: Carl W. Evans, Ga.; John O. Johnson, Washington; Wm. F. Ryan, Mass.; Allison G. Neff, Ohio; Ritchie Lawrie, Jr., President, NSPE; Fred W. Hill, District of Columbia; Herbert H. Scott-Smith, Conn.; Chas. E. Blais, R. I.

Second row: Jas. P. Exum, Texas; Jos. A. Brady, N. Y.; C. S. Worley, Okla.; E. W. Seeger, Wis.; H. E. McWethy, Minn.; John B. Jardine, N. Dak.

Third row: Geo. H. Anderson, Ill.; W. C. Wagner, N. Mex.; Dan D. Ricketts, Ark.; C. G. Roush, Mo.; LeRoy Christman, Penna.; Hale C. Sehorn, representing President Chas. H. Mohr, Md.

Top photograph includes Directors and other guests.

President's Conference at Columbus Gets Behind Expanded 1946 Program of NSPE

Preceded by a Meeting of National Directors from the Member State Professional Engineering Societies—Presidents' Conference on March 30th Showed Almost 100 Per cent Attendance—Main Purpose To Spread Enthusiasm for Immediate Implementation of Society's Objectives, Fully Accomplished At Conference.

The National Society of Professional Engineers is now *Definitely on the March!*

The Society's National and State Officers are now thoroughly stirred with the unalterable conviction that the ideal of an over-all Professional Engineering Organization, can be and will be achieved.

These Professional Engineers believe that *right now* is the time to get going, *and fast.* They are certain that NSPE is the instrument through which their Society's over-all objectives can and must be accomplished.

All this and much more was clearly evident to all who gave close attention at the sessions of the National Directors and the Presidents' Conference at Columbus, Ohio, March 29-30.

On all sides there was more than ample evidence that these Professional Engineers intend to put forth every effort to get 100 per cent State cooperation behind President Ritchie Lawrie's plans for the immediate stepping-up and speeding up of the National Society's organizational work on all fronts.

The Conference Photograph

Two photographs were taken at the close of the morning session of the Presidents' Conference on March 30th. Both photographs are reproduced in this issue of The American Engineer on page 4.

With just one exception, every State Society was represented by its President and National Director, or an alternate. In addition to this representation, there were representatives from four states not yet affiliated with the NSPE as follows: S. G. Szabo, of Michigan; Elmer Munger, of Nebraska; W. C. Wagner, of New Mexico, and John B. Jardine, of North Dakota. The total number present at each of the sessions was between 60 and 70.

The Directors' all day meeting on Friday, and the Presidents' Conference on Saturday, were held in the spacious ballroom of the Deshler-Wallich Hotel. Each of the sessions was devoted chiefly to reports of Committee Chairmen, and with questions and serious discussions of these reports from the floor.

Purpose of the Conference

As outlined by President Ritchie Lawrie, Jr., the purpose of this get-together of National Directors and State Presidents, was to bring the immediate problems of the Society forcefully to the attention of the membership in the states, and to highlight the importance and urgency of taking early action to expand the activities of the National organization.

At the opening of the sessions, President R. Lawrie outlined these purposes in some detail. There is vital need, he said, that the full membership in the states understand clearly the importance and the urgent nature of the issues with which the Professional Engineers of the nation are faced at this time. He expressed the feeling that if the rank and file of the membership could be made sufficiently well informed of all that needs to be done, and also what an adequate handling of these problems could do to improve the lot of the average Professional Engineer, there would be no question as to the constructive nature and extent of the response. President Lawrie emphasized the importance, therefore, of taking back to the membership the genuine enthusiasm and highly cooperative spirit so evident in these meetings.

Practice and Ethics

Past President Harry E. Nold reviewed the excellent work which has been done in securing the passage of registration laws for Professional Engineers in 47 states. Each of these Boards charged with the administration of these laws, he pointed out, has its own code or canon of ethics for the guidance of Engineers.

Public Relations

An interesting and informative report for the Public Relations Committee, was presented by Chairman Charles E. Doell. This report drew much favorable comment. Equally well received was Chairman J. S. Kennedy's report for the Employment Practice Committee. The amount of thorough, painstaking work being done by these two able committees is a credit to every Committee member as well as to the Chairmen. The work of these two committees will contribute much to the future success of the Society's over-all program.

Legislative Committee Report

As usual, Chairman Ray M. Fuller, of the Legislative Committee, did a remarkably competent job of reporting on that Committee's activities and plans for the future. Mr. Fuller made it abundantly clear, however, how impossible it is ever to get adequate results on reporting legislative matters, so long as the Society depends on volunteer, part time services of committee members. He made a convincing plea for a fulltime paid Legislative Secretary and staff, to be located in the Washington headquarters office.

Among the duties of the Legislative Secretary, as outlined by Chairman Fuller, were:

(1) Keep in constant touch, and so far as possible, friendly contact with the various United States Senators, Representatives and their official staffs. Particularly those who are most responsible for the introduction of legislation that affects the engineer and his varied interests.

(2) Be the ears of the National Society in order that such legislation is anticipated as far in advance as possible, so that intelligent referendum may be had from the constituent

State Societies for the purpose of establishing National Society Policy; and to the extent possible, making our viewpoint known prior to the introduction of legislation that may affect us.

(3) Follow legislation through Congressional committees, arranging for the National Society views to be presented at hearings, if and when necessary, and possible; and to seek out from our membership, or otherwise, men with prestige and ability to go before Congressional committees and forcefully represent our interests and those of the public.

(4) Help to secure and coordinate last minute effort both in Washington and back through the State Societies, if necessary, to defeat legislation detrimental to our interests and the public welfare in its passage through Congress.

Legislative Bulletin Needed

The Legislative Secretary would also issue, at frequent regular intervals, a Legislative Bulletin. The primary purpose of this Bulletin would be to provide an up to the minute source of news on legislative matters of interest to the State Societies.

Chairman Fuller believes that fundamentally, the need for a Legislative Secretary in Washington is just for one purpose—and that purpose is *Congress*. His experience in legislative work demonstrates, he said, that what is done in and by Congress, affects all Engineers, sooner or later.

Mr. Fuller concluded his remarks with a quotation from President Ritchie Lawrie: "The profession is at the Cross Roads! Will it travel the *professional highway*, or proceed along the common road?"

NSPE Panel Joint Committee of NCSBEE

Special Committee Chairman James F. Fairman, reported eloquently on the NSPE Panel of the Joint Committee with the National Council of State Boards of Engineering Examiners. He indicated a rapidly growing degree of understanding and spirit of cooperation which, if properly developed, is certain to mean much for the future of an over-all Professional Engineering organization. Mr. Fairman's report was obviously of interest to every delegate present and while highly encouraging, brought out a number of interesting questions from the floor.

Membership

The Chairmen of the two Membership Committees, Earl L. Daily, for the Eastern, and L. E. Peterson, for the Western Section, reported substantial membership increases in many states. Local committees in all sections are rapidly becoming alert and are developing more efficient methods of recruitment. The good record of membership growth during 1945 is expected to be bettered by a heavy per cent in the year just ahead.

Report on Budget

Budget Committee Chairman S. L. Stolte presented what was described as a "Functional Budget," representing a breakdown of anticipated expenditures of NSPE for the year 1946. This budget includes $31,100 for general administration, including salaries and other expenses of the Washington office. The anticipated salary of an Executive Secretary is provided for in this budget, but no amount is set up for the cost of a Legislative Secretary and staff. The estimated expenses in connection with the various standing and special Committees, legal counsel and the publication of The American Engineer, totalled $17,900. The expected cost of meetings, such as that of the Board of Directors, the Executive Committee, and the Presidents' Conference just held were included at $6,000.

All this adds up to a grand total of $55,000 which must be provided, even for the carrying on of a very modest program for 1946.

NSPE's Financial Status—The Emergency Fund

Treasurer Leo H. Cleary reviewed the Society's financial situation as of the first of the present year. His brief summary indicated that last year's deficit has been turned into a substantial credit balance on hand at the beginning of 1946.

As of April 5th, the tabulation of the 732 contributions to the Emergency Fund received up to that date, showed a total collection of $6,390. The breakdown of the figures indicated that the largest per cent of members sending in contributions came from the engineers of Illinois, while New York State topped all others in the total amount of money. The general concensus among the delegates appeared to be that contributions will be greatly stimulated as a result of their attendance at this Presidents' Conference.

Plans for the improvement and expansion of the service rendered by The American Engineer, were discussed by W. L. Larkin, Chairman of the Publications Committee. He displayed two suggested designs for a new cover for the magazine. It was decided to have these designs photostated and copies submitted to the State Societies for further comments and suggestions.

Following the close of the Directors' Meeting on Friday, the delegates and visitors attended a dinner meeting of the Franklin County Chapter of the Ohio State Society of Professional Engineers, at the Seneca Hotel. The speaker was Mr. Fred I. Rowe, president of the W. L. Johnson Construction Company, of Columbus. Mr. Rowe was a contractor member of the Technical Commission of the War Production Board. As a member of a committee of technicians from Allied countries he made an exhaustive study of German underground construction and other defense features.

In Conclusion

If we may judge by the whole spirit and the comments—both on and off the record—of those attending this two day get-together, it was clearly evident that President Lawrie's purpose in calling the Conference has been successfully accomplished. No one could hear the reports of the speakers on the program without being convinced that the Professional Engineers are really ready to *"go places"* for and with their organization. No one could listen to the many comments from the floor without being satisfied that these officials are solidly behind the present ambitious plans for the immediate expansion of the NSPE's over-all objectives, starting in 1946. No one could mix with the delegates present from each State Society without realizing how full of enthusiasm these leaders of the Professional Engineers of America will be as they report back to their own State and Chapter organizations.

From every indication, President Lawrie of the National Society of Professional Engineers has his answer. The Profession will "travel the *highway*"—not the "common road." And the start is being made in 1946!

Objective—"Social and Economic Advancement of Engineers"

By Ritchie Lawrie, Jr., President of NSPE
An address delivered before the 1946 Annual Meeting of the Wisconsin Society of Professional Engineers, in Milwaukee, Wisconsin.

Editor's Note:—The subject of Mr. Lawrie's address before the Wisconsin Society was suggested to him by Mr. Lawrence E. Peterson, and was announced as, "The Sociological Aspect of the Engineering Profession." Webster's Dictionary defines the word Sociology as follows: "The science that treats of the origin and history of human society and social phenomena; the progress of civilization, and the laws controlling human intercourse; the philosophical study of society; a branch of ethnology; popularly, the aggregate of all branches of science that bear on social relations."

Ritchie Lawrie, Jr.

Lawrence Peterson being a popular fellow—and since he suggested this high-sounding and somewhat profound subject, I am taking the liberty of limiting my remarks to the popular definition of "sociological," i.e., the engineering profession, a branch of science and its bearing upon social relations.

As to the word social in this presentation, I am using the meaning "pertaining to society"—society in turn being the collective body of persons composing a community or the aggregate of such communities. In short, I am going to talk to you about the Professional Engineer and his social relation to his community. One more explanation—in the use of the word "community," I refer to the broad definition, meaning not only the good old home town, but the State and Nation as well. So really, and finally, the subject of my talk is—"The Professional Engineer and His Social Relation to His local Community, State and Nation."

Economics The Key

This is a subject particularly fitting the occasion because as members of the National Society of Professional Engineers we are committed to a program advocating the social and economic advancement of the engineering profession.

In the consideration of the sociological aspect of the professional engineer, it is advisable that we inquire first into his economic status, for his social position—his ability to serve society—is directly dependent upon his financial resources. Such an interdependence is obvious. As a matter of fact, none of us would be able to attend this meeting if we did not enjoy a certain degree of economic means—the wherewithal to pay our way. Take away our economic resources and we become an impotent bunch of bums—sociological nonentities.

What is the economic status of the professional engineer? The answer—none too good! Why is this so? Two reasons come to mind. In the first place, engineers possess certain inherent qualities which result in a reticent nature. We are reserved sometimes to the point of being timid, shy, and most certainly entirely too modest. While we have the "know how," in many cases we do not appear to have the ability to sell it—to convince the other fellow of our real worth. We under-rate our abilities. We hold our services too cheaply. All of us know of instances too numerous to mention which confirms this unfortunate and unsatisfactory state of affairs. We need to raise our economic standards. As Charles Dickens so aptly put it—"It is well for a man to respect his own vocation whatever it is, and to think himself bound to uphold it, and claim for it the respect it deserves."

In the second place, we are individualists—rugged individualists. We came by this characteristic honestly. It may be attributed to our training and to the fact that we are called upon in our profession to work as individuals—as perfectionists, if you please, engaged in solving problems and meeting situations demanding accuracy and precision in arriving at our conclusions.

In this age of follow-the-leader, without much thought as to the fitness, the capabilities or the integrity of such leadership—it is refreshing to be associated with a group of individualists such as the numbers of our profession. We do not ask the world for a living nor are we too much concerned with the question of a life long security. Once we give in to the philosophy of a life of insured security, forgetting the principles of thrift, industry and freedom, we will be lost—we will be as nothing. We want an opportunity to make our contribution and we want to make it without interference from outside our profession. So long as there is hope, we will have faith to continue in the struggle. We will press on to the mark of our high calling and we will attain our objectives.

More "Rugged" Than Individual!

Certainly, there is much to be admired in rugged individualism but rugged individualism carried too far is harmful to any organized effort. Controversial questions must be resolved. In the consideration of such questions, sometimes we encounter difficulties as the individualistic spirit rebels and continues to rebel against the decision reached by the majority. At times progress is stifled by an antagonistic, nonconformist attitude.

Now I would not have you believe that matters of import to our profession should be railroaded without the benefit of opportunity for full debate

—but I do wish to emphasize that once an issue has been decided, in a fair and just manner, then individual opinion should graciously give way to the majority opinion and the measure as adopted should receive enthusiastic, unanimous support.

Let us have no prolonged and uncalled for bickering—let us present a united front. We must have unity of action. Unquestionably our economic advancement has been retarded due to our inability to bring real team play into our efforts. All of which recalls the following Kipling quotation:

"It ain't the guns nor armament—
Nor funds that they can pay
But the close cooperation
That makes them win the day.
It ain't the individual
Nor the army as a whole
But the everlastin' teamwork
Of every bloomin' soul!"

Most assuredly we need team work.

I have dwelt at some length about our economic status for as it improves, so will our opportunities increase for social service to our fellow man and as I see it the sociological aspect of the engineering profession is just that—social service to our fellow men.

Engineers Deserve Credit

There is no question as to the vital part the engineering profession has played in service to our fellow man in providing and perfecting our shelter, our transportation, our communications, and in the production of our food stuffs. There is no question as to the dominant part the engineering profession has played in World War II in the design, production and transportation of materiel and equipment on the home front and in the utilization of all such materiel and equipment at the battle front. There is no question as to the part the engineering profession has played in the utilization of radar, in the field of electronics, and in the development and perfection of the amazing atomic bomb.

When we think of these marvelous achievements by our profession we can puff up with pride—justifiable pride.

The members of the engineering profession cannot expect to continue to devote their entire time and energy to the material advancement of mankind without giving consideration to the economic and social welfare of the community and, if you please, the all important spiritual phase of our present day civilization.

When it comes to participating in social activities we have assumed a complacent attitude. Possibly any desire on our part to enter into the social relations field has been dampened by our modesty which tends to destroy individual initiative, and by our rugged individualism which to a degree nullifies unity of action.

We should be taking a far more active part in social relation activities. We should support to the best of our ability the social and civic institutions of our respective communities. By virtue of our training and experience we can make a valuable contribution in serving on committees and boards of such organizations as—The Boy Scouts—The Y.M.C.A., Service Clubs, Veterans Organizations, the Community Chest, Hospitals, Crippled Children's Societies—and last, but by all means not the least—the Church. We should take an active part in our local, State and National political affairs. Probably some may be thinking—"Well, the local politics and politics in general are so bad and so dirty that I'd soil my hands if I attempted to mess with them." Well—if that is the situation, it will continue to be that way unless and until some decent, reputable, patriotic citizens pitch in and show an interest in political affairs.

Engineers Should Seek Policy-Making Offices

We should seek membership on our school boards and other official bodies such as park commissions, planning commissions. We should offer ourselves for service on our public bodies, our borough and municipal councils, and our state and national boards. We should consider the possibility of election to our state and national legislatures. We can make a valuable and urgently needed contribution as members of such bodies. The judgment of the experienced engineer is sorely needed in meeting the problems confronting our communities, our state and our nation. Of course it is not to be expected that we can enter into all of these activities, but most assuredly we should and can give our enthusiastic and helpful support to at least two—first and foremost our Church—and at least one other as we may elect.

If we are to make our contribution in meeting the challenging problems in the field of social relations, then it follows that we must actively participate and assume our full share of the community load.

It is also necessary for us to become more articulate—we should express our individual views—by all means we should at all times exercise our right to vote—not just on important issues, not just for the big office candidates—but at every election for every election is an important election.

It is equally important in effectuating an effective social relations program that, as an organization, we make our voice heard at the local, state and national level of all matters pertaining to our profession. We should clarify our position and make it clear to the proper public authorities, for as we promote the welfare of our profession, in like manner we promote the welfare of the general public.

To summarize, I have endeavored to point out—first, that our social relations program is dependent in a large measure upon our economic position; second, that we should improve our economic position so that we can better discharge our responsibilities as regards our participation in social relations activities.

How Are We Going To Do It?

In the National Society of Professional Engineers, its Member State Societies, and local chapters, we have an organization equipped to do the job. I stated in the beginning that as members of the NSPE we are committed to a program advocating the social and economic advancement of the engineering profession.

Our basic objectives—toward which all others point—is to improve the welfare of the engineering profession. It is important that we constantly keep this objective in mind.

For many years the Founder Societies have been concerned with the technological advancement of the profession. In recent years the Founder Societies have been aided in their service by some forty technical offshoots. All of these societies have been doing a grand job and the profession looks to them to continue their splendid programs in their respective specialized technological fields.

But obviously no one of these technical societies nor any group of them can represent nor speak for the entire engineering profession concerning matters having to do with social relations and the economic and political status of the whole engineering profession. Clearly, this is an assignment demanding the services of an Over All Engineering Society with members from all the branches of this great profes-

Ethics of the Engineering Profession

By S. L. Stolte

Director, National Society of Professional Engineers

An address presented to Senior Engineering Students at the University of Minnesota, January 22, 1946.

This opportunity to appear before the Senior Engineering Students at the University is not only appreciated by me, but I believe it is a challenge, responsibility and opportunity to eliminate a vacuum of information, which condition existed at least when I came out of the University. Had I been informed on certain facts regarding the road ahead, I am sure I would have eliminated some considerable lost motion, and even stumbling, in the practice of the profession of engineering.

We in the profession want you to come out of the University equipped with the benefit of our experiences and with as good a perspective of what you may expect in the practice of professional engineering as it is possible for us to convey and, in turn, we want you to know what responsibilities rest upon you as a professional engineer not only as related to yourself but also as related to your fellow practitioners, and finally but most important as related to your responsibility to society.

S. L. Stolte

In deliberating on the subject assigned to me, it seems reasonable that we should begin with an analysis of the two words "professional" and "ethics."

Ethics Defined

Considering the word "ethics" first, a reference to a dictionary might give the definition as: "The science that treats of the principles of human morality and duty," or, "That branch of the theory of human conduct which is concerned with the formation and use of judgments of right and wrong," or even the old Golden Rule of doing unto others as you would have others do unto you. Going back to the Greek word for ethics, we find it having to do with conduct, custom or manners; and the Roman word reflects a definition of morals.

There are several schools of thought on the subject. One would argue that ethics is a branch of philosophy because it is concerned with the ideal, sion. The NSPE is such a society. It is organized so as to insure the social and economic advancement of the individual engineer as well as the entire engineering profession. In NSPE the voice and opinion of the individual member is supreme. Its organization starts at the local grass roots level where the individual member holds sway. Its program originates at the local level—flowing through channels to the State units and on to the National unit. The National unit formulates the policies and in turn administers them to the State units and on to the local chapter units.

It is the job of NSPE to awaken the individual engineer to a professional consciousness—to a loyalty for his profession. It is the job of NSPE to bring unity into a divided profession—to the end that there will be brought into play an effective administration of an integrated program properly coordinated at the local, state and national levels—a program in the interest of the individual engineer, the profession and the public welfare. Obviously this cannot be accomplished overnight. While it is true we have come a long way in the past ten years, nevertheless we have a much longer way to go. Our program is not revolutionary, but evolutionary in attainment. As our program comes into play, the sociological aspect of the Professional Engineer will assume definite proportions and will take on a real meaning.

NSPE Has Great Future

During the past ten years NSPE has enjoyed a remarkable growth in membership and in prestige. Before another decade passes, it will be a National Society fully as representative and equally as potent as the powerful Bar and Medical Associations.

The National Society of Professional Engineers is an organized endeavor premised upon the belief that by virtue of the medium of State Registration—a great calling—which for years has been divided, as a result of ever increasing sub-divisional emphasis—can be organized into a single Over All Society—better understood and better appreciated by the people of America and highly prized by those who compose it. It is the American Way. We are a youthful organization—we are hampered by growing pains—we will make mistakes but they will be mistakes of the head rather than the heart, because our hearts are in the work. We will have our ups and downs but most assuredly we will continue in our forward movement! In closing, I leave with you this bit of Emerson's philosophy:

The Turn of the Tide

"The line between failure and success is so fine that we scarcely know when we pass it—so fine that we are often on the line and do not know it. How many a man has thrown up his hands at a time when a little more effort, a little more patience, would have achieved success. As the tide goes out, so it comes clear in. In business sometimes, prospects may seem darkest when really they are on the turn. A little more persistence, a little more effort, and what seems hopeless failure may turn to glorious success.

"There is no failure except no longer trying. There is no defeat except from within, no insurmountable barrier save our own inherent weakness of purpose."

with what ought to be or is absolutely desirable as distinct from the actual or existent. Another school would contend that ethics may be a scientific analysis of conduct which treats with the moral obligations one person owes to another and to his community at large and proceeds to outline those rules which determine conduct. It seems evident that ethics as a science or an art is usually a composite of the two in varying proportions.

Contrasted with the large amount of discussion and definitions one can find regarding ethics is a limited definition of the word "professional." This may possibly be due to the fact that there is less controversy regarding its meaning. Generally, the adjective "professional" implies a distinction from "amateur"; and in the athletic world it distinguishes a participant who receives pay for his art and skill from one who does not. A profession is properly regarded as a calling or vocation requiring a certain minimum of education and training to qualify. In other words, it is primarily intellectual as contrasted to manual. This education may have been gained in recognized institutions of learning or, and quite rarely in these days, may be an equivalent self development.

Social Responsibility Involved

Mr. W. E. Wickenden, President, Case School of Applied Science, in an article recently, quite appropriately, analyzed the sphere of professional status as being an implied contract to serve society over and beyond all specific duty to client or employer in consideration of the privileges and protection society extends to the profession. To possess and to practice a special skill, even of high order, do not in themselves make an individual a professional man. Mere technical training at any level is vocational rather than professional in nature. He quite aptly referred to the first mile as the mile of compulsion which one must travel day by day if he is to survive, but beyond that lies the mile of voluntary effort—the second mile, where men strive for special excellence, self expression rather than material gain, and give that unrequited margin of service to the common good which alone can invest work with a wide, extra helpful and enduring significance.

Now let's be specific regarding professional ethics as it applies to the engineering profession. Unfortunately the engineering profession does not have today a single code of ethics for the entire profession. We, as a profession, have not until recently realized that our standards of practice could not obtain a minimum over-all competence while we continued to operate as individuals rather than as a group or a profession. However keenly and completely we may be trained in our respective engineering fields to rationalize and discover facts as they are and in turn have the "know how" to apply the principles of mathematics and the physical sciences to arrive at answers in accordance with these findings, we have not applied that same "know how" to our own profession. I restate that such was the case until recently.

Profession Lacks Uniform Code

For example, in studying a code of ethics for the Minnesota Association of Professional Engineers, I had occasion to review codes of ethics as they existed for many different engineering groups and for other professions, and particularly was I struck with the lack of any uniformity in various engineering codes of ethics.

We, as a profession, are still debating whether it should be a "code" or a "canon" of ethics. In my own opinion, the answer seems clear. The profession of law uses the term "canons." Medicine uses the word "code." The word "code," to me, seems to connote any system of principles or rules, relating to one subject, whereas the word "canon" implies a law or truth. Well, it seems that we are defining principles or rules of conduct which law cannot necessarily reach, and our term is therefore quite properly a "Code of Ethics."

I concluded, however, that we just had not as a profession attended ourselves sufficiently to the work of a code of ethics that would be applicable to the over-all engineering profession.

Suffice it to say that since the adoption in 1942 of a code of ethics for our profession in this state by the Minnesota Association of Professional Engineers, I have become acquainted with work and study on a code of ethics that was started in the early 1930's by the American Engineering Council and then, upon dissolution of the American Engineering Council, carried on through the Engineers' Council for Professional Development (ECPD), which latter organization currently has a committee on principles of engineering ethics under the chairmanship of Dr. Dugald C. Jackson of Cambridge, Massachusetts.

The committee now consists of representatives from each of the founder societies, the American Institute of Consulting Engineers, the American Institute of Chemical Engineers, the National Council of State Boards of Engineering Examiners (NCSBEE), the Engineering Institute of Canada, the Society for Promotion of Engineering Education (SPEE) and the National Society of Professional Engineers (NSPE). So apparently this study has now been actively carried on for some twelve or more years and is about to come to some conclusion—I hope. By the way, the over-all Code of Ethics for the medical profession, I noted, was adopted in 1934. So maybe we are not so far behind after all.

An Expression of Agreed Upon Principles

Codes of ethics are nothing more than putting into an expressed form those principles of relationship and conduct which are, through experience and custom, found to be in the best interests of the practitioners and the general public welfare. As published by the MAPE, the foreword to its Code of Ethics lays the foundation for the subsequent requirements and is quoted as follows: "That he may render proper and professional service to individuals and society, that the dignity of his chosen profession may be maintained and advanced in public understanding and esteem and that his welfare may be improved, it is the duty of every professional engineer to practice his profession according to the following code of ethics." Then the code directs itself first to the professional engineer's responsibility to the public, then his responsibility to the client or employer, and then his responsibility to other members of the engineering profession. Even the principles as set forth in this code are not all-inclusive. In order to have something definite to consider here, we might find that a condensed code of ethics would generally deal with the following principles:

Scope of Codes Outlined

1. To consider his profession as affording him distinct opportunity for the improvement of the public welfare.
2. To conduct himself at all times

in a manner to merit and inspire the respect due a professional engineer.

3. To purposely take part in community and civic life.

4. To refrain from associating himself with any enterprise of questionable character.

5. To refrain from expressing any opinion which is not founded on adequate knowledge and honest conviction.

6. To make provision for adequate safety to life and health affected by his work.

7. To carry on his professional work with fidelity to client and employer, fairness to employees and contractors, loyalty to country and with devotion to high ideals of service, courtesy and personal honor.

8. To afford client or employer the best talent within the profession through consultants as needed.

9. To refrain, except with full knowledge and consent of affected persons, from serving professionally when financial or personal interests might compromise him as an unprejudiced advisor.

10. To accept compensation for service from one source only, except with full knowledge and consent of affected persons.

11. To advertise as an engineer only in a manner befitting the dignity of his profession.

12. To refrain from soliciting professional employment or services except in conformity with this code.

13. To refrain from reviewing the work of another engineer without his consent.

14. To refrain from taking unfair professional advantage when called in as a consultant by a fellow engineer.

15. To avoid using unfair means to win professional advancement, such as: undercutting established minimum fees or salaries, making derogatory remarks about a competitor or making extravagant and even untrue claims.

16. To refrain from injuring falsely or maliciously the professional reputation, prospects or business of another professional engineer.

17. To refrain from association professionally in a partnership or a quasi partnership with a person not registered.

Invest Time in Your Profession

18. To cooperate in the upbuilding of the engineering profession, and, gentlemen, let me state right here and now, and in particular reference to principle "18," that as you budget your time and money in the future and as truly professional engineers—allot a proper proportion of both your personal time and money in the interest of your profession. By this means alone can we anticipate the adequate handling of your professional interests, and in turn the best interests of society.

It is apparent from any judgment of the above principles of engineering professional ethics that to a large degree a professional practitioner is put upon his personal integrity and honor to properly serve his employer, his clients and the general public. In other words, the public expects that in dealing with a professional person they are actually placing themselves upon his honesty to deal properly with them and in their best interest.

The person served generally is uninformed in the professional service sought and must rely upon fair and confidential treatment. It is for this very reason that every profession has a great responsibility to society that society's best welfare be served. With a common code of professional ethics, your fellow engineers know what to expect of you under a given set of circumstances as it relates to your honorable conduct under the conditions involved.

Recognition Must Be Earned

Generally, it can be stated that the other professions of law and medicine expect that in dealing with a member of our profession we are ruled by similar personal principles of conduct as such relate to the general public welfare. Unfortunately in the past, when professions have been enumerated, they have generally mentioned law, medicine, and the clergy. During the past decade, because there has been a greater unifying of the engineering profession, there also has been a greater recognition of our profession as such, but we still have a lot of work to do. We do recognize that the public cannot be bludgeoned into esteeming our practice as a profession but that rather we must by our conduct and our type and calibre of service merit the respect and esteem of the public.

Let us consider a case for a moment of bad ethics: a community advertises for professional engineering services to do a particular job. It even asks for a bid bond. If any professional engineer complies, he is going against the ethics of his profession for we all know that you cannot measure the calibre of professional service by the low bid entered—as a matter of fact, just the opposite may be true. Professional services are retained based upon reputation and past performance. This position is now upheld legally.

Engineering Societies

Now, let us discuss engineering societies for a moment. The following are some of the technical societies which cover the technical subdivisions of the profession: American Society of Civil Engineers (ASCE), American Society of Mechanical Engineers (ASME), American Institute of Electrical Engineers (AIEE), American Institute of Mining and Metallurgical Engineers (AIM & M), American Institute of Chemical Engineers, American Institute of Consulting Engineers, American Society of Heating and Ventilating Engineers, American Society of Refrigerating Engineers, American Association of Railroad Engineers (AARE), Society of American Military Engineers (SAME), and more recently societies in the fields of radio, electronics and aeronautics. Then there are some general groups such as the American Association of Engineers. These last mentioned societies are generally on a national scale with various degrees of state and local representations.

Minnesota Societies

Then in the State of Minnesota there are various other local or state wide engineering groups, with a variable specification of membership from specialists or professional engineers only to persons interested in engineering, such as the Engineers Club of Minneapolis, Engineers Society of St. Paul, Duluth Engineers Club, Engineers Club of Northern Minnesota, Minnesota Surveyors and Engineers Society, Twin City Section of Illuminating Engineers Society, Minnesota Industrial Chemists Forum, Minnesota Association of County Highway Engineers, Twin Section of American Society of Refrigerating Engineers, Minnesota Association of Professional Engineers and the Minnesota Federation of Engineering Societies.

In this state fourteen of the engineering societies above mentioned are members at the state level of the Minnesota Federation of Engineering Societies. The Minnesota Federation of Engineering Societies is, therefore, the welding link of all shades of engineering interests in this state.

The Value of Registration

Of all of these state societies above

mentioned, only the Minnesota Association of Professional Engineers, and possibly the County Highway Engineer's Association, restricts its membership to persons legally qualified as registered professional engineers. The Minnesota Association of Professional Engineers takes in all branches of engineers so long as the individuals are registered professional engineers; MAPE, therefore, is the first over-all association in this state limited to professional engineers and now attending to the over-all welfare of the profession. Members of the Minnesota Association of Professional Engineers in turn are also members of the various local clubs or societies as well as the various technical engineering societies.

Now, some might say John Doe and John Smith received similar training and experience—both are equal in native ability—Smith became registered but Doe did not—does registration make Smith a better professional engineer? The answer is obviously "no," but Smith comes before society with a recognized stamp of ability whereas Doe still has to prove himself a professional engineer to persons unacquainted with him.

In present court proceedings and government board meetings, it is the legal status that prevails. Therefore, Smith, as a registered professional engineer has the legal advantage of status plus the fact that the public knows that Smith has subscribed, in registering, to a code of ethics and practice which is on the plane sought by the general public.

Further, John Doe, except for some small exempted activities, in this state is prohibited from practicing as a professional engineer except as he is registered in accordance with the state registration law.

Why The Divisions?

Unquestionably, anyone learning for the first time of these numerous engineering societies would ask, "Why so many?" And I can but agree. We feel that we, as a profession, have been remiss in unifying the profession wherein we might properly serve our various fields of interest, but when an over-all professional problem confronts us, we should in turn be able to marshall all engineering interests into one main channel or trunk. For simple illustration, I might state that, if we compared our profession to the elements of a tree, we would find that many of the smaller branches and some of the larger secondary or main branches have become full grown with the trunk of the tree still missing.

Now, the insertion of the trunk of the tree at this stage of the game, in many cases, would amount to a major operation, but, if we are to realize our final strength, we must have this organizational relationship. For example, law and medicine have long since answered this basic organizational relationship as a profession wherein they have their various technical or specialist groups within the American Medical Association, but these are all attached to the trunk, the American Medical Association, and the full weight of the entire profession is concentrated on any over-all welfare problem.

Need For Overall Organization

We should, or rather any outside group such as Congress, state legislatures, committees, trade or industrial organizations should, when wanting to contact the engineering profession, be able to knock on one door and get all the answers. Then, this one over-all group could decide to call in representatives from certain specialized or technical branches as needed. That is the way law and medicine operate as professional organizations today.

As you can suspect, we feel that some over-all national engineering society, embracing all the various subdivisions of our profession with component state and local chapters, is the present answer to the final unification of the engineering profession in this state and country. By this process alone can we avoid duplication of effort. In this way, the technical societies can continue to serve the specialized fields and a properly organized over-all society can speak for and represent the engineering profession as needed in civic, state or general welfare problems. It is, also, by this unification that we can insure to our clients and the public minimum standards of competence which must be maintained if the safety and welfare of the public is to be protected and to make possible a uniform code of practice which will be in the best interests of not only the practitioner but society generally.

Organization Gives Power For Good

Now to conclude with a few additional remarks about professional ethics and in some degree to justify why, under such a title, we have also discussed engineering societies and unification of the engineering profession, let us contemplate for a moment what proper professional ethics could have meant in the horrible and expensive war just waged (expensive not only in money and material, but also in lives and indescribable suffering and anguish). Suppose the professions of engineering and medicine had said to Hitler et al, "No, we cannot as professional men with our knowledge of our responsibility to people, society and the world contribute our services to your expressed aims!"

The war could not have been waged if just these two professions, properly unified within those countries and worldwide, had refused to cooperate with designers of a ruthless, villainous and pillaging war.

I recently noticed that the medical profession had refused to cooperate with the governing political body in Argentina. Doctors are now being tried as criminals of war—I don't see why certain engineers and scientists are not similarly guilty.

That is how far reaching and world shaking the practice of good or bad professional ethics can become!

Coming events to be Remembered

Oct. 27, A.M., NSPE Board of Directors Meeting, St. Louis, Mo.

Oct. 27, P.M., Joint meeting of NSPE and the NCSBEE Boards of Directors, St. Louis, Mo.

Oct. 28, A.M., NSPE Board of Directors Meeting, St. Louis, Mo.

Dec. 6, Third Annual Meeting, Georgia Society of Professional Engineers, Atlanta, Ga.

Dec. 6, NSPE Board of Directors Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga.

Dec. 7, NSPE Annual Meeting, Atlanta-Biltmore Hotel, Atlanta, Ga.

At present we try to get all copy in by the 5th of the month previous to that of publication. In special cases we can get items as late as the 10th of the month previous to date of issue. Please keep the Editor informed in advance of all meetings or other society events having news value at the National level.

A newspaper writer suggests that a good research job might reveal ways to reduce the ridiculously large number of separate layers in the exterior wall of a modern frame house—fourteen by actual count. Some contractors, as well as unions, might object to such a survey.

The Social Responsibility of the Engineer

By Richard R. Price, Executive Secretary

Minnesota Association of Professional Engineers

(Condensation of a lecture delivered to the senior engineering class at the University of Minnesota, January 15, 1946).

You young gentlemen are soon to embark upon a professional career for which you have devoted some four or five years of preparation. At the beginning each one of you will have to decide whether he is taking up a mere method of making a living or devoting himself to a profession; then, he will govern himself accordingly. As an engineer, you will have laid upon you and must recognize at least three obligations: to your profession, to your employer, and to society. This discourse is devoted to the latter, your relationship to the society which you serve and which in turn supports you.

And first a word about the role of education in this matter. Here we must clear up some common misunderstandings. Many people, and I regret to say that this includes many college graduates, seem to conceive of education as being identical with knowledge or learning or scholarship. That is not so. Knowledge, erudition, generally result in education; not infrequently they result in pedantry. Knowledge is the building materials but it is not the structure.

A psychologist has said that education is the process of turning an individual into a personality. In this invisible process knowledge is only one of the essential elements; the other three essentials are experiences, observation and reflection. That is why there is more than a modicum of truth in the saying, "Education is what you have left after you've forgotten what you learned." Education is not an objective to be reached or a goal to be attained: it is a continuing process of becoming.

Society Expects Much

To the education and training of professional men society has contributed much, both formally and informally; it has a right to expect much in return. If any engineer, student or practitioner, is skeptical or indifferent, let him ponder seriously the following observations:

Mr. Engineer, who or what made you what you are, vocationally? To whom or to what do you owe that vast collection of scientific facts, natural laws, mathematical formulas and tables, data on the properties of materials and manuals on correct procedure and practice—on all of which engineering as a science and an art is based? Who established the college of engineering where you got your scientific training, and taxed the people to maintain it? Answer these questions fairly and honestly and you have an index of the debt which you owe to a long line of predecessors, many of whose names are to you unknown.

Richard R. Price

As a matter of fact you are the heir and the beneficiary of an impressive and significant collection of garnered and treasured knowledge of facts, principles and working methods, many of which date back to remote antiquity. Each generation has made its contribution to this cumulative fund of knowledge. The nineteenth century was notable for the accelerated pace of these additions to the common stock. And we must include here not only knowledge but also inventions. All the labor-saving machinery and the instruments of precision are available to you because of the labors of thousands of your intellectual and professional ancestors. And more than this: you are also the inheritor of the fine traditions and the ethical standards of a long line of honorable and upright men, who made integrity and trustworthiness the corner stones of that imposing edifice of which it is now your privilege to be a part. That is why you are now a member of a profession, with all that implies, and not an artisan. It is your part now to carry on the great tradition. Let it not be soiled or marred in your hands.

Our Debt to the Past

We are all a part of the past. Our mental as well as our physical heritage goes back through eons of unrecorded time. In order that you might have the tools with which you now work thousands of men have spent toilsome days and nights in research and experimentation. They have investigated phenomena, arrived at tested conclusions and have recorded their observations for your benefit. To such men you owe your system of logarithms, your calculus, your mechanics. All this garnered store has been put into your textbooks and your engineering handbooks. Thus your professional equipment was not made by you or devised by you. It was put into your hands as the unearned contribution of the past. Moreover you did not pay even for your own education, more than half of the cost was paid by taxpayers or by gifts to endowments.

Therefore, the engineer may not sit on the sidelines and watch with indifference the struggle of contending policies, social philosophies and ideologies. He has the imperative duty, as one of the molders of public opinion, of becoming an active participant in the struggle; of raising his voice and exerting his influence in favor of what he conceives to be the right direction of progress and public welfare. If he fails to do this, he fails in his most significant duty as a man and a citizen; for he has not brought succor to those who are fighting his battle and he has perhaps by his inertia permitted a minority to direct the course of civilization. That very thing has happened more than once in history; and always to the ultimate detriment of society.

Professional Responsibilities

In addition to being a citizen the engineer is also a professional man.

The professional engineer has laid upon him under the unspoken mandate of society a special and heavy obligation and responsibility lying outside of and above his technical skill and competency: that is, to concern himself with the welfare and the right development of the social organization in which he lives and works, and from which he draws his sustenance. The professional engineer may not shirk or evade this obligation if he wishes the public to accept him as really and truly professional; or if he wishes to have his weight count in the guidance of public trends and the shaping of social policies. The mark of a true professional spirit is ability and willingness and desire to do voluntarily in the public interest what the law does not and can not command. This point of view is well set forth in the following timely paragraph from W. E. Wickenden in "Electrical Engineering" for February, 1945:

"The essence of a profession is social trusteeship. A physician is expected not only to be skilled in the arts of diagnosis and of therapy, but also to guarantee in company with his fellow physicians the standards and facilities of the health service offered to his community. A lawyer is expected not only to be skillful in drawing legal instruments, in pleading cases and in composing disputes, but also to join with his colleagues in guaranteeing the standards of justice in the courts and legislative bodies. One requires of a clergyman not only the services of a spiritual minister and adviser, but also that men of the cloth unite in giving voice to the public conscience and force to public morals. Likewise, an engineer is asked not only to be expert in the technique and economy of materials and energy, of structures and products and utility services, but also to guarantee that society will reap the fruits of scientific advance and technical progress in general well-being."

Engineers Must Go That "Second Mile"

Thus, besides making a living and securing professional and public recognition and esteem for his technical contributions, the professional engineer is in honor bound to go the second mile and "to guarantee that society will reap the fruits of scientific advance and technical progress in general well-being." Note the significance of the last three words quoted: not general destruction, not general devastation, not general terror, not general subjugation of the many by the few, but *general well-being.*

Just now the nation is in a turmoil over such urgent matters as housing, employment, industrial strife, the atomic bomb and international relations. In some of these areas engineers have specialized knowledge and convictions. The engineers of the country have something to contribute to the problems, and they should let their light shine; not as individuals only but also as organized bodies. Failure to do so invites that which is now happening: the authoritative judgments of engineers are being ignored and their very considerable contributions to the common welfare treated as negligible in a field peculiarly their own.

One thing appears plain. As stated by F. O. Holt in a recent issue of the *Wisconsin Professional Engineer*: "There must be a narrowing of the gap between scientific progress and political thinking." We are living in a world of jet planes, rocket projectiles, air transport, atomic energy and the marvelous techniques of mass production, and yet our thinking, our ethics, our moral reactions and our conceptions of international relations are deeply rooted in the Nineteenth Century. There is a lamentable lag between our really stupendous progress in the realm of technology and the necessary adjustments in the thinking of the people themselves, requisite to bring about the reorientation of attitudes and human relationships preparatory to participation in the new World Order. An old world is dying and a new world is struggling to be born; and yet many of our citizens, including the engineers, seem to be totally unaware of that significant fact.

Engineers Must Bridge This Gap

Who are better fitted to bridge the gap than the engineers? They are used to dealing with facts objectively and unemotionally. They work with the inexorable laws of nature and with the fixed properties of materials. They are not wont to trifle with the inevitable findings of mathematics. They are accustomed to exactness and accuracy. No engineer has tried to repeal the law of gravitation or to make Pi a whole number. He is habitually aware that there is nothing in nature so stubborn as a fact.

The engineers made important contributions to the war effort, as may be judged from General MacArthur's dictum, "this has been an engineer's war." The profession must be credited with such achievements as mass production, aircraft design, landing fields, amphibious landing craft, tanks and bomb-sights. Yet it must be admitted that the engineers as a body are not socially minded and that therefore they are not so organized professionally as to make an impact upon the consciousness of the public. To put it briefly, the public is not aware of the importance of the engineering profession to social progress and to the general well-being.

Hope for the Future

However, there is ample evidence that maladjustments and errors of omission are being and will be remedied. One significant sign is that the curricula of engineering schools are being re-examined with a view to thorough-going reconstruction to meet the needs of the times. The proposed five-year courses of study will bring in more of the social sciences and the humanities. The engineers of the future will be more socially minded and socially conscious. Best of all, during the past five years the engineers themselves have been showing an increasingly marked awareness of their civic duties and responsibilities.

There is a new spirit in the profession—a new sense of solidarity and dignity. The engineers are realizing that they are a very important part of the social structure and are therefore assuming the true professional attitude and spirit. This accounts for the organization in the several states of over-all professional societies as distinct from the technical groups. The state societies are components of a national society and these are all united on the professional plane; that is, they aim at the social and economic welfare of the engineer and at his status as a respected professional member of the society which he serves.

The remaining task is to see that all qualified men are registered as professional engineers and then recruited as members of these over-all professional societies. Then the future of the engineer as a member of one of the learned professions, with the prestige and esteem thereto appertaining, will be secure.

Engineers in Control of Atomic Development

By A. C. Klein

Engineering Manager, Stone & Webster Engineering Corporation, Boston, Mass., Statement made before the Special Committee on Atomic Engery, United States Senate, February 13, 1946.

Editor's Note: The following statement, coming from a man of Mr. Klein's background and standing in the Engineering Profession, deserves careful reading by all engineers who are interested in securing proper recognition for Professional Engineer by governmental agencies. We call special attention to Mr. Klein's statement of the ways in which the viewpoint and the functions of the engineer differ from those of the research scientist.

Important Legislation

The legislation proposed by Bill S-1717 may well be the most important postwar legislation that Congress will be called on to pass for many sessions. It creates a Commission whose powers for domestic and international good cannot be overestimated. In international relations it will be a powerful arm to the President and the State Department in advancing the cause of permanent peace, and in our domestic affairs it will have a profound influence on every phase of industry through the creation of cheap sources of power. It will also have a profound effect on medical science.

It is therefore highly important that the Bill should be written to provide the best possible Commission organization, one which will achieve its objectives in the shortest possible time.

The Bill in general is, in my opinion, an excellent measure giving the Commission it proposed the broad powers over the development and utilization of atomic energy which are necessary to promote its objectives. However, the Bill is, I believe, defective in that it fails to include a Division of Engineering created on a parity with the other divisions designated by the Act.

Administrative Engineers Required Here

It is also my opinion that the creation of a Division of Engineering under the provisions of the last sentence of Section XI (a) is not sufficient to provide the Commission with the necessary engineering strength because a Division of Engineering created under the provisions of that Section would be under the direction of one of the Directors selected for his ability in the field of research, production, materials selection or military application. It is my belief that one of the Directors should be an administrative engineer selected for his experience and ability in fields which qualify him to promote the aims of the Act.

By this Bill the Congress will create a Commission to control one of the greatest industries in the country, an industry which will rank with the steel, automotive and electric power industries. It will be well, therefore, for your Committee to consider how the interrelated functions of research, engineering, production and materials are usually controlled in large industrial organizations. Not all large industrial organizations perform all of these functions. Many of them draw on outside sources for research or engineering design and construction. Much research work for industrial corporations is handled by institutions, such as the Mellen Institute, the Battelle Institute and by research fellowships created in our leading universities. Not all of them handle their own engineering design and construction. Such organizations as Stone & Webster Engineering Corporation are available to furnish these services.

Administration Must Be Divided By Functions

However, for those who do perform all three of these functions research, engineering and production problems are handled by separate groups, each headed by an executive especially selected for his ability in that particular field. These divisions necessarily have a different approach to the problems of the corporation and have different viewpoints which must be explored and harmonized whenever important action effecting the policies of the corporation is to be taken. We may visualize the work of the Atomic Energy Commission to be comparable to the work of such industrial corporations.

As provided in the Bill, there will be a Division of Research which should be headed by an administrative physicist of outstanding qualifications.

There should be a Division of Engineering, headed by an administrative engineer experienced in the fields of design and construction and having a thorough knowledge of the industrial fabric of the country and of the possibilities and limitations of production line manufacture of equipment.

There will be a Division of Production, headed by an administrative plant operator, and this division should concern itself primarily with the operation of plants for the production of fissionable material.

The Pattern of Operation

The operation of these three divisions would, it seems to me, be about as follows:

The Division of Research would undertake a broad research program, looking toward the discovery of basic information which will simplify or improve the production of fissionable material and further its commercial, military and medical uses.

The Division of Research would also investigate matters requested by the Division of Engineering and Production, and approved by the Commission as a whole. It would make recommendations regarding changes in operating and utilization practices.

The Engineering Division would have an important part in passing on such recommendations from the standpoint of determining plant investment costs and operating savings (the latter in conjunction with the Division of Production). It would also explore and report on the ability of industry to furnish any new equipment required and would prepare time schedules of the work involved. Later, upon approval of any such project, the Division of Engineering would supervise the design and construction of the plants, including procurement of equipment. Close contacts among all three divisions would be maintained throughout the design and construction period and the Engineering Division would be responsible for coordinating such contacts.

The operations of these three divisions would always be closely related, whereas the operations of the other two divisions now provided by the Bill would be more self-contained and independent.

Engineers Should Handle Utilization of Materials

Another function in which the Division of Engineering would play a leading part would be in connection with the utilization of fissionable material. The most important potential use of this material is to produce cheap heat which, in turn, may be used to generate steam or to heat air or some other medium for industrial process operations, or for the generation of electric power. Of these, electric power generation is of the greatest importance. All of these operations in the generation of heat, its use for process purposes and for the generation of electric power are fields in which the engineer is best fitted to function.

In the use of fissionable material for power generation many problems must be overcome. It is not unreasonable to expect that they will equal in magnitude those which were encountered and solved in the construction of the three fissionable material plants which have been constructed in the last three years. The first application of atomic energy will undoubtedly be in super power plants, operated in conjunction with existing large electric distributing systems. It will be important to utilize as much as possible of the existing electric utility systems and in that field the knowledge and experience of the engineer will be essential. The services of an able Director of Engineering would be indispensable in connection with this major development of atomic power utilization.

Engineer Vs. Research Scientists

Now it might be well for me to point out a few of the reasons why the functions of the engineer and of the research scientist are so fundamentally different that the operations of the two should be separated and controlled by Directors of equal standing. These stem primarily from the difference in approach of the two toward their problems.

The scientist, dealing in research, discovers all sorts of facts about the world around us and the universe beyond. Frequently, these discoveries lie dormant for years, decades or even centuries. Sooner or later the engineer takes them up and puts them to practical use, thereby furnishing society with improvements in living conditions and the general welfare of the people. Incidentally, the engineer's work causes these discoveries to yield monetary returns which in turn furnish the funds for financing additional research.

The scientist discovered helium in the sun's corona; engineers separated it from natural gas for military, medical and commercial use. The scientists discovered the principles of catalytic chemical reactions. The engineer applied them to the design and construction of the great synthetic rubber and high octane gasoline plants. Scientists developed means for separating isotopes and discovered the phenomenon of uranium 235 fission through observing the action of submicroscopic quantities of uranium. Engineers multiplied their experiments a billion fold, produced the atomic bomb and opened the door to the era of atomic power.

How Viewpoints Differ

The viewpoint of the engineer differs from that of the research scientist in the following respects:

The scientist's work is performed on a laboratory scale.

The engineer must deal with full plant operation.

The scientist's experiments are completed within a period of a few hours or a few days and his apparatus can be constructed to have a very limited life. The engineer must design and construct plants which will operate continuously for months or years.

The scientist is able to draw on the most highly skilled personnel to do his work. The engineer must provide apparatus within the capacity of plant operators of average intelligence and education. It is this phase of the work that calls for development of intricate automatic control equipment.

The scientist performs his experiments on a single piece of apparatus. The engineer must design equipment to multiply these operations many fold. Duplicate pieces of equipment and spare equipment must be provided which are completely interchangeable. For this he requires a knowledge of shop practices and shop technique which is not essential to the scientist.

Engineer Concerned With Costs

The engineer is always working against the important factors of time and cost. The scientist is not so concerned. In this connection I was interested in reading the testimony of the first witness before this Commission, Dr. Sachs (Page 27 of the Record) in which he states that "University research is inherently characterized by a 'traditional discursive attitude and leisurely tempo'."

Such an attitude would quite properly permeate the Division of Research and would preclude its head from also directing a Division of Engineering effectively.

It is particularly important that a strong Division of Engineering be created from the moment that the Commission begins to function. While the testimony before this Committee has indicated that it will take any other nation an appreciable period of time to construct a nuclear fission plant and that there is in fact a doubt whether the industrial economy of most foreign nations could support such a program at this time, the thing that we have to fear is that research either here or abroad will result in such radical improvements in the production of fissionable materials, conceivable through the discovery of new methods and the use of new materials, that the time will come when the industrial handicap they are under may be removed.

Basis of Leadership Not to Remain Static

It is to be expected that our research work within the coming decade will produce just such a result, and the extent to which we maintain our present lead in the development of atomic energy will depend upon the skill and speed with which we implement our research discoveries by parallel engineering advancement and by the design and construction of new fissionable material production plants. It is especially important that we maintain our lead during the next decade, in order that we may continue to occupy a dominant position in the atomic energy field, and that we may thereby be enabled to use that position to create a strong United Nations Organization. Once that is done, and the production of fissionable material and use of atomic energy is controlled by international agreements, then we may continue our advances in making this great force freely available to all the countries of the world without fear of a war of aggression and annihilation.

Consolidation Recommended

I recognize the importance from an administrative point of view of having a small membership in the

Commission; the smaller the number of the Commissioners, the greater the speed of action, and I therefore suggest that a place be made for the recommended Division of Engineering by the consolidation of two of the other divisions. The ones that seem best adapted to such a consolidation are the Division of Production and the Division of Materials.

We are familiar with the materials problem which were of primary importance in this project, namely, the procurement of uranium ore and its refining. On our entry into the project, facilities had to be provided in the form of additions to chemical manufacturing plants to provide for the rapidly growing demands for uranium compounds and for other materials such as carbon, beryllium, etc. Apparently this need for increased plant facilities has existed up to the present. We may assume that one of the first steps of the new atomic energy commission would be to reduce plant operations to a fraction of present rate; thereby, raw material requirements would be greatly reduced and present suppliers would find themselves with an excess of material production facilities. The problem of procuring materials should, therefore, be not difficult and this work could well be placed under the Division of Production. This is where it is handled in most large industrial concerns.

I, therefore, recommend consolidation of Division of Production with Division of Materials.

Relative Cost of Research and Production

In passing on these suggestions, it may be well for your Committee to consider the relative magnitude of the work carried on in the fields of Research Engineering and Production during the development of the atomic bomb. These may be visualized by an analysis of the expenditures made by each. The figures already appear in the record in the statement of expenditures submitted by Gen. Groves. In the attached Table* they have been arranged to indicate how much money was spent on each of the processes for Research, for Engineering and Construction and how much is currently being spent for Production.

The division between Research and Engineering is clean cut and definite, and it shows that in each of the processes Engineers spent 90 per cent of the cost and Research Scientists only 10 per cent. Surely with that division of responsibility, the creation of a Division of Engineers is a "must."

As to Production, the figures show the monthly expenditures only but these also are enlightening. They show it will take from 3 to 8 years of operation for production expenditure to equal construction costs.

Gen. Groves has stated that Diffusion Plant operating expenditures will increase and Electromagnetic will decrease. Possibly they will equalize at 2 per cent per month. At this rate production expenditures would not equal original plant cost in less than four years. But that is at present rate of operation. Any production curtailment would reduce all production costs still further. Again, surely a Director selected for his ability along production lines should not control the much greater rate of Construction expenditures.

The Summary

To summarize, I consider that the proposed Commission should be strengthened by the establishment of a Division of Engineering under the direction of a Director selected for his administrative and engineering qualifications, and that only by the inclusion of such a division can the Commission operate to the best advantage in accelerating the development of atomic energy for domestic utilization and for maintaining the dominant position which the United States now holds in the production of fissionable material and in its application.

Engineering and Construction, Research and Production Expenditures *
Atomic Bomb Project

Process	Engineering and Construction Amount Millions	%	Research Amount Millions	%	Production Cost per Month Amount Millions	% of Construction
Diffusion	$500	91	$45	9	$6.0	1.2
Electromagnetic	317	91	33	9	12.0	3.8
Metallurgical	302	88	42	12	3.5	1.2

* Page 73 Record of Testimony

National Issues—Washington Economic and Political Front

Editor's Note—The worthy objectives of the National Society of Professional Engineers must be achieved, if at all, within the framework of our present political and economic institutions. This being true, it is essential that Professional Engineers understand more clearly than most, just how these institutions function for or against the public interest.

It would be fatal for engineers to have a conception of "Professionalism" as requiring that they held themselves to be above and beyond the realm of political and economic vagaries and incoherancies. For the present mistakes of our political and economic leaders may plunge us into another depression, if not another war. Engineers should know that wars and depressions do not "just happen." They are caused by the selfishness or incompetency of top level leadership, plus our failure to modify our political and economic institutions to conform to the changes in our way of life brought about by the vast expansion of technology in America.

It is unlikely that Professional Engineers can achieve their ultimate objectives, while human affairs are in the present state of confusion and instability. Many engineers believe that it is clearly a necessary part of the Profession's responsibility to share its peculiarly applicable type of functional competency to the designing of new and better techniques of meeting and solving pressing social problems. It appears obvious that our past policy of forever "changing political horses," in the middle of the stream, or otherwise, is not the answer.

What must be understood is that all sources of public information, including the press, radio and the public platform are under the same type and degree of compulsion from pressure groups which is so evident in National and State legislative, judicial and administrative bodies. It is difficult to form a true picture of what is wrong with government or with business unless we concern ourselves with what goes on behind the scenes, politically and from the economic standpoint.

It is hoped that the comments in this column from month to month will be of some assistance in indicating to socially minded engineers, what must be done to give America the benefit of the "Engineering Approach" so necessary in this technological civilization.

It's An Oily Issue

Considering the number of weeks that must elapse before this appears in print, it would be unwise to predict the future of the much head-lined Iranian issue, involving a clash with the Russians. Without attempting to justify the attitude taken by either side on this question, attention should be called to the highly prejudiced reporting that is evidenced, especially in newspaper cartoons and headlines. To say the least, the American people have been given generally a one-sided and highly colored picture of the whole situation.

It was months after this issue was raised in the press, before the word "oil" was publicly mentioned. After that the fact was played down that Russia was really after an oil concession in Northern Iran, comparable to that enjoyed by England in the south, and which the United States enjoys in nearby territory. As the UNO meetings opened, when the "lie" was being passed to the Russians, over the alleged "agreement" with Iran, it developed that one Russian word can be translated either "agreement" or "understanding."

All observers agree that the Russian representatives are generally poor diplomats. This is reminiscent of the remark of the late Will Rogers that America had "never lost a war, or won a conference."

Pot and Kettle Both Black

One significant fact that seldom, if ever gets into print, is Russia's insistance that her troops have as much right in Iran as have the troops of other nations in Greece, Egypt, Indonesia, Iceland, etc., etc. There is much private comment also on a point most Americans have forgotten, that some 18 years ago, the United States, at the Havana conference, stoutly refused to discuss the presence of American troops in Panama, Nicaragua, and Haiti—a situation somewhat parallel to Russia's recent occupation of Northern Iran. At these now largely forgotten conferences, the United States gave Russia a precedent for demanding the veto on discussions affecting her interests.

All this is worth mentioning under present circumstances, because there is so much talk of World War No. III, and because this talk can refer only to Russia. All responsible commentators in Washington believe war with Russia would be international suicide. For this reason it is absolutely necessary that we *understand* Russia. The idea that there is no possibility of such an understanding, is considered by insiders as plainly just part of the present widespread propaganda which must be checked, if we are to avoid an atomic bomb war.

A part of the story being told is that Russia "mistrusts the democracies for no reason at all." If the American press would impress on the public mind even a few of the reasons WHY Russia mistrusts us, along with other members of the UNO, there would not be the same tendency to misunderstand and to fear Russia's intentions.

Fanaticism Endangers Peace

Russians have long memories. In addition to our invasion of Russia at Archangel, there was her experience in the old League of Nations. During those meetings it was customary for all the delegates to walk out of the room in a body, whenever the Russian delegate spoke on the need for more cooperation, or to remind the other delegates of their promise to join in world-wide disarmament. The most outstanding diplomatic technique of the nations antagonistic to Russia, has been to brow-beat and to high-hat her representatives at every opportunity. Much of this attitude was based on the feeling, once quite general, that the Russian experiment could not possibly endure, and that it was the spiritual duty of all Christians, owed to God and country, to put every possible obstacle in the way of Russian progress. While most of the capitalistic world has now come to recognize the vitality of the Russian system in the Orient, our own State Department still sends to diplomatic posts throughout the world, including Moscow, the sworn and often fanatical enemies of everything Russian.

Many sincere believers in the superiority of the capitalistic system, both in and out of Congress (Senator Pepper for example) believe that Americans must be told the truth about Russia and Russian's points of view, if we are to avoid war of suicidal magnitude. Insiders in Washington agree that much of the so-called news is highly colored, and that it grossly distorts the world picture.

Many of those highly placed Washington officials, whose distaste for the Russian form of social organization is very acute, nevertheless are intelligent enough to believe that the American people should be told the truth about all international affairs. It should be of real concern to all believers in democracy and of popular government, to realize how difficult it is to get at the facts upon which may depend the very existence of our economic and political freedom.

This issue seems one which should interest the type of engineers whose training compels them to want to face the facts. Nothing that can be done in the field of mere better organization of engineers can amount to much, if we neglect the issues which, because of misinformation and gross mishandling, may drag the entire nation into war for the third time in a generation.

A "Strike" By Any Other Name

As previously predicted in these columns, many of the older labor troubles are clearing up via increased wage allowances, which are to come out of the pockets of consumers, as usual. As time goes on, there is likely to be few big strikes, and more of the smaller ones.

At present the milk producers—farmers—threaten to go on "strike" if not given an increase of two cents a quart. In colloquial language only a demand on the part of employees is called a strike. Actually it is difficult to disagree with those union men who insist that when producers or distributors refuse to deliver, until they get more money, that is a "strike" also. No matter what we call it, increases in prices and wages constitutes the real substance which is *inflation*.

Price Control

The battle to maintain price controls is still on. Both sides continue to fight desperately for their point of view. Obviously inflation is on its way, fed by strikes, wage increases, and the lure of possibly higher prices in the future. Undoubtedly more production is the answer, but it must not be forgotten that the control of production volume is in the hands of concerns which may feel little interest in holding prices down by that or any other means.

Many items on the market are scarce and high priced also because producers

divert scarce component elements into products carrying a higher rate of profit. Butter fat brings more profit used in ice cream than in just plain butter. Wool cloth made into women's apparel nets a higher profit than when made into suits for men.

In Washington, every sale of white shirts for men brings a long line of buyers. At the same time *Dress Shirts* have to be advertised over the radio—of course at prices much higher than the ceiling on ordinary shirts. Flimsy men's umbrellas that were hardly worth $2 before the war, now retail, when you can find one, at around $16.

There are many instances of just this sort of thing, and nobody seems to have a ready answer which can be applied within the framework of our licentiously free system of enterprise.

The problem seems to be in part, how to channel supplies away from the sources of greatest profit, into the areas of greatest need, according to Reconversion Director John W. Snyder.

Pressure Groups Under Fire

Congress is attempting to conduct an "investigation" of lobbying. It is difficult to believe this effort will find much more than lip service from any politically minded officials. For most lobbying is pressure, and pressures have been the basis of most government policies for years. One difficulty is that some so-called lobbies are actually "educational" in character, and it is going to be difficult to secure an honest differentiation between the good and the bad.

One type of "pressure" on Congress has resulted in a vast majority of members wanting to be known (at least for the record) as being against military control of Atomic Energy.

Still another investigation is a "brass hat" investigation of an alleged "caste system," and of "fascist" tendencies in the armed services. Nobody believes that any new facts will be brought to the attention of the committee members, or that the old evils will be given more of an airing than is absolutely necessary in order to make some kind of a showing. The Army set-up is hundreds of years old, is a relic of feudal eras and no real change is likely to come from within. As one newsman put it, "The Army plans to toss a bone."

Attacks on the Administration's policies, both domestic and foreign, continue. They range all the way from displeasure with the necktie Mr. Truman wore at the Jackson Day dinner, to his alleged contradictory statements about his foreknowledge of the contents of Mr. Churchill's late unlamented Missouri speech. Perhaps the most intelligently potent criticism of the President's tendency is that it appears to be a policy of generally taking the line of least resistance—especially that of attempting only to ameliorate, rather than to clear up any situation.

Is This Appeasement?

The present intention to send a new ambassador to Argentina is thought in some quarters to have political dynamite in it. It will certainly not serve to convince the Russians that we are not still pursuing a policy of appeasing fascist elements. Probably one basis for the State Department's policy in this matter is to gain Argentina's cooperation in supplying food for starving Europe.

Unemployment is rising rapidly in several sections of the country. Many of the shortages in basic raw materials, such as lumber, paper and textiles, are due in part, to the unwillingness of workers to return to those low-pay fields.

How To Start a Refresher Course For Engineers

By D. W. Converse

D. W. Converse

Editor's Note: This outline is reprinted from the Ohio Engineer in the belief that it may be helpful in getting refresher courses started in other State Societies. The Cincinnati and Franklin County chapters are working on plans now to have "refresher courses" incorporated into the curriculum of the Evening or Night Schools of Cincinnati University and Ohio State University respectively.

This is the third year (1941, 1944, and 1945) the Akron Chapter has conducted a school for prospective registrants, who wish to take the state examination at Columbus.

The Educational Committee was appointed by the President of the Chapter for the purpose of arranging classes for the benefit of Junior members or any others, who desired to take the state examination each July.

Classes were conducted twice each week, (two hour sessions) during April, May and June, in preparation for the examination each July.

1945 a Banner Year

In 1945, the largest classes were held with a total enrollment of 73. Of these 16 were Junior members of the Chapter. Classes were conducted in Mechanical Engineering by Engineers Tom Dee and Associates; in Industrial Engineering by Engineer E. L. Hineline; in Civil, Structural and Surveying by Engineers Chas. Orr, William Carr and Floyd Love. A special session was conducted in the Law of Contracts and the Registration Law by Engineer - Attorney James Thierry.

About 22 members of our school took the examination and 16 were successful. In 1944, seventeen out of 21 were successful, and in 1941 eight passed out of 11. For these reasons alone the school must be considered a success. (The State average is 60 per cent.)

The success of the school has been due to the excellent teachers, who spent many additional hours in preparation for their classes, although they had regular jobs during the daytime. We also wish to give credit for the splendid cooperation of the State Board of Registration and the encouragement we received from them.

The Akron Chapter does not attempt to conduct a Refresher School for the January examination, as everybody is too busy in November and December with the holiday season. Our Refresher

School has always been conducted in April, May and June in preparation for the July examination.

Early in February, the President appoints the Educational Committee, consisting of our Publicity man and three other members of the Chapter, one or two of which have had some previous experience in school administration or school work. The President usually attends the sessions of the Committee.

At the first meeting of the Committee, it should be provided with a list of all the State, City, County, Village, Utility and Industry Engineering Departments in the jurisdiction of your Chapter, together with their addresses. A notice is next prepared, and one is mailed early to each engineering department. Don't forget that an industry like—for example the Firestone Tire and Rubber Company may have as many as twenty engineering departments. Two hundred and fifty notices were mailed out last March by the Akron Chapter.

Sample Notice

The.....Society of Professional Engineers will conduct a school of instruction for the benefit of Junior members or any other interested in attending the examination for registration as Professional Engineer and/or Surveyor.

This school will be conducted during April, May and June, 194.... as a review for the state examination at Columbus next July.

Classes will be held in Civil, Mechanical, Electrical, Industrial Engineering and Surveying or any other branch in which there are sufficient applicants. These classes are all free. Students will bring their own pencils and paper.

Please communicate AT ONCE with any member of the undersigned committee giving your name, address and branch of engineering in which you are interested.

Notices will be mailed early in .....advising place, hours and dates of the classes. Each applicant will receive a schedule of the classes in which he is interested.

Educational Committee,

These notices may be posted on the various engineering department bulletin boards by certain members of your Chapter or by the Committee.

After the interested parties write in to the Committee they will know how many and just what classes are to be formed. Usually one member of the Committee is designated as the "Superintendent" of the school. By this time he should have his teachers lined up. Teachers are obtained from the membership of the Chapter, as many as possible being experienced in teaching.

Most any industry will donate a room with a blackboard for the use of a class. The Akron Chapter has never paid out any money for heat, light or rent for any of its classes.

Next, after all the classes are lined up a schedule is prepared for each class. Copies of the schedules are mailed to each member of each class and of course to each teacher.

Sample Schedule

Classes for Electrical Engineering Applicants.....Society School Schedule.

Place: Ohio Edison Building, corner East North Street and Furnace Street, ..., Ohio. Entrance east side of building, center. Classes on second floor.

Time: Wednesday, April 4th, 19.... and Friday, April 6th, 19...., 7:30 to 9:30 P. M. and each Wednesday and Friday during April, May and June 19.....

Hours may be altered slightly to suit all concerned.

Instructors—
Nathan M. Frankfurter.

The Superintendent and the teachers hold one session in which a curriculum is prepared. The curriculum is usually made up largely of former examination questions, which the teachers have on hand from their University courses.

At the first session of each class a member of the Committee is out front to show the students how to reach their classroom.

From time to time the Superintendent and the President of the Chapter visit all the classes to encourage them and provide application blanks for registration as well as membership application blanks, to any who may want them. The Superintendent and the Teachers always help the students fill out their applications.

And so now you have the Refresher Course in operation. It is not such a big task as it appears at first. The undersigned will be only too glad to loan his file or help any Chapter, in any way, to start a Refresher School.

EDITORIALS

Release the Brakes on Production!

In a recent address entitled "Let's Release the Brakes on Production," John H. Van Deventer, President and Editorial Director of the Iron Age, stated: "The machine age was built by engineers, but is run by lawyers and politicians."

Continuing Mr. Van Deventer said: "Engineers and production men know how the wealth and prosperity of a nation is built. The man in the street and the majority of workers in our plants have no conception of it. . . . Engineers and production men and progressive management know that all wealth must come from productivity . . and not merely total productivity . . but productivity per hour and per capita."

This Subject is Dynamite!

We feel this speaker came very close to the really "hot issues" which our civilization has been dodging ever since the machine age came into being. Most significant was Mr. Van Deventer's further comment on our war prosperity: "We have, at least here at home, been living in a bottle-fed, high income economy, with Uncle Sam's treasury acting as the 'milk man,' at the expense of the National Debt."

Yes indeed! Virtually with one hand tied behind our backs, we in America *doubled* our national production during the war years, with twelve million of our best producers in the armed forces. At least an equal number were engaged in activities having no peace time value. And all because of the *magic* of what Mr. Van Deventer calls Uncle Sam's "milk man."

What so few seem to understand is the vital role always played by this so-called "milk man." We produced 160 billions worth of goods and services during each year, with the aid of purchasing power supplied by 60 billions of public borrowing. Without that "milk man" borrowing, the production would not have been possible, within the framework of our present economic institutions.

"Milk Man" Economics

The fact that no responsible person wants to face in public is that this

situation is not peculiar to war time economy. Waste of every kind is more flagrant in war time. But most of that wastage goes to swell the profits of enterprise directly, or indirectly through the high spending of high paid workers.

During the "roaring twenties,"—the Harding-Coolidge-Hoover prosperity era, the private "milk men" went into debt (in more polite economic weasel words, "invested") a total of 211 billions in eleven years. In previous "boom" periods, it was railroad bonds, real estate or other more or less speculative borrowings that provided the "milk man" buying power to make high production possible.

Actually there is no record in the whole history of our machine age that production was ever the *cause* of our prosperity. In every case high production volumes were the *effect* of prosperity, a prosperity based on "milk man" economics, exactly as in the recent war years. The record is, the more generous (or careless) the "milk man," the more production.

This is the situation which cries to high heaven for some clear-headed fact finding, some fact facing. Are Professional Engineers going to dodge the plain facts of our boom-bust political-economic history—situations that in their own professional field they would not tolerate for a moment?

The very basic nature of the problem is physical and well within the scope of Professional Engineering competency. Also there is some hope that Engineers may be able to face these disagreeable facts in a way that probably no politician or economist would risk his job by even admitting.

Wanted—
An Economic Brake Engineer

The brakes on production are a perpetual *shortage of adequate buying power.* For even now if the brakes were taken off of prices, the buying power reserves of the nation would evaporate almost over night. We've never found any answer, except the "milk man," and eventually he, too, goes on a strike, and we have a depression.

What is needed is not more laws—but the creation of a working plan—what the engineer calls a "design." That design must be based, not on age old customs and traditions, but on the known, actual, present-day "operating characteristics" of our own economy. And in that design we must eliminate all necessity for the continuance of our "milk man" form of buying power.

Government By Skill

It has been said of America that her "Frontiers are disappearing." Probably what is meant is that certain of her "Growth curves" are sharply levelling off, as every engineer knows all such curves must eventually. As for "Frontiers," they are not East, or West, North or South, but wherever a man confronts a fact or an idea that is new to him. And these have been coming to Americans faster than most people can absorb them.

To say that America has lost her frontiers then, is to miss utterly the fact that America is in the midst of a struggle to fulfill her social destiny—a destiny made inevitable by her unique volume of varied wealth forms in resources and in technology. We on this Continent are in the midst of a battle between old concepts of government, of economic forms and radically new situations which make many basic changes inevitable.

A Challenge to Engineers

The sad fact—and a fact that may mean early tragedy for America—is that the Engineering Profession for the most part, is so slow in taking its rightful place in the forefront of this battle. For no other group of men is qualified so well by education and training—if possessed with the necessary vision—as are the Professional Engineers.

Research and invention is the natural field of the scientist and the engineer. These skills deal with the discovery of facts and principles in nature and with new applications of this knowledge to human uses. Here is where the discoveries and advancement in knowledge take place. These workers are the real mid-wives of civilization. They bring to light and life that which is new. The scientists and other technologists are at the apex of the functional order, and a higher authority on physical values than they, does not exist.

Indeed America's history is actually written by her rapid technological growth—despite the fact that such a history is still practically unwritten by historians.

All the basic problems of America stem from the head-on collision of ideas involved in our attempt to operate and control a machine civilization, through strictly political ideologies and the economic institutions of the hand tool age.

Our biggest problems center around methods which will give us adequate production and distribution from our farms and mass production industries. The solution of this problem is not within the functional capacities of politically-minded individuals, placed in high positions primarily because of their vote-getting abilities.

America needs a *government by skill!* That is always a prime essential in every technological situation. The essential skills that alone can solve problems growing out of our rapidly expanding technology, can be supplied only *by top flight engineers.* The rank and file American would be quick to see the logic of that—possibly even quicker than most engineers realize.

Old World Thinking Won't Do In An Atomic Age

The following is from an address by Professor Albert Einstein to the Fifth Annual Nobel Anniversary Dinner in 1945. The point of view expressed deserves the serious attention of Professional Engineers everywhere.

"The picture of our postwar world is not bright. As far as we, the physicists, are concerned, we are no politicians and it has never been our wish to meddle in politics. But we know a few things that the politicians do not know. And we feel the duty to speak up and to remind those responsible that there is no escape into easy comforts, there is no distance ahead for proceeding little by little and delaying the necessary changes into an indefinite future, there is no time left for petty bargaining.

"The situation calls for a courageous effort, for a radical change in our whole attitude, in the entire political concept. May the spirit that prompted Alfred Nobel to create his great institution, the spirit of trust and confidence, of generosity and brotherhood among men, prevail in the minds of those upon whose decisions our destiny rests. Otherwise human civilization will be doomed."

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PUERTO RICO	C. CALOR MOTA University of Puerto Rico Mayaguez, Puerto Rico	ANGEL SILVA, Ex. Sec. Dept. of the Interior Santurce, Puerto Rico	SALVADOR QUINONES 20 East Leland Street Chevy Chase, Maryland
RHODE ISLAND	CHAS. E. BLAIS 185 Princeton Avenue Providence, R. I.	VINCENT DiMASE 201 Dean Street Providence, Rhode Island	DANIEL C. CARGILL Box 257, RFD 2 Valley Falls, R. I.
TEXAS	JAMES P. EXUM 704 Texas Avenue Austin, Texas	R. S. GUINN 504 Ewell Nalle Bldg. Austin, Texas	W. M. ANDREWS Union Nat. Bk. Bldg. Houston, Texas HARRY K. RUPP c/o Penna. Shipyards Beaumont, Texas ROBERT COLTHARP 401 E. 31st Street Austin, Texas
VIRGINIA	C. GRADY CATES 417 Arlington Rd. Roanoke, Va.	C. G. MASSIE 4030 Fort Drive Lynchburg, Va.	J. FRANCIS SETTE 4701 Connecticut Ave., N. W Washington, D. C.
WASHINGTON	JOHN O. JOHNSON 1626 Calif. Ave. Seattle 6, Wash.	DeWITT C. GRIFFIN 717 Lloyd Bldg. Seattle, Wash.	H. C. GLAZE Paulsen Building Spokane, Wash.
WEST VIRGINIA	P. K. PIERPONT 712 College Ave. Bluefield, W. Va.	ROSS B. JOHNSTON, Ex. Sec. Kanawha Hotel Charleston, W. Va.	T. J. JACKSON 1203 Augusta St. Bluefield, West Virginia
WISCONSIN	EDWIN W. SEEGER P. O. Box 464 Milwaukee 1, Wis.	O. J. MUEGGE 656 Crandall St. Madison 5, Wisconsin	L. E. PETERSON 312 E. Wisconsin Ave. Milwaukee, Wisconsin

Kindly report any errors or omissions to the Editor.

National and State Society News

Meet The New Executive Director of N.S.P.E.

Paul H. Robbins

President Ritchie Lawrie, Jr., has announced the appointment of Paul H. Robbins as the Executive Director of the NSPE. Mr. Robbins is expected to take up his new duties at the Washington Headquarters Office around May 15th, 1946.

This appointment is the result of action taken by the Executive Committee after some forty-five applicants for the position had been considered. Mr. Robbins is particularly well qualified, both by education and experience, to assume the manifold duties of this important position.

Paul H. Robbins was born at Syracuse, N. Y., February 15th, 1914. He is married, has one small daughter. He is a graduate Engineer, with a B.S. in Civil Engineering from Syracuse University, and a M.S. from the Massachusetts Institute of Technology. He has completed two-thirds of his course leading to a Ph.D. Degree at Columbia University.

Our new Executive Director is a Director of the New York Port Chapter, Army Transportation Association; a member of the Society for promotion of Engineering Education; the American Society of Photogrammetry, and the National Association of Training Directors. He is also a member of the Tau Beta Pi, Phi Kappa Phi and Delta Sigma Rho, national honorary Societies.

Experience Background

For the past three years, Mr. Robbins has been Director of Training and Employees Relations, New York Port of Embarkation and Consultant on Training, Chief of Transportation, U. S. Army. As Director of Training and Employee Relations, he was responsible for the development of civilian personnel as employed by the army for work at the largest War Department installation.

The New York Port of Embarkation the supplies and men for the African was the principal port through which and European Campaigns left this country. At the height of the activity, over 30,000 civilians were employed. Mr. Robbins went with the port at the beginning of its expansion and developed a staff to meet the requirements of functions assigned. This entailed the direction of a staff ultimately numbering 55, engaged in a variety of forms of personnel development. Operations encompassed all phases of rail, highway and marine transportation, engineering and warehousing.

Later Mr. Robbins was sent in an advisory capacity to all major installations in this country under the command of his Chief, to consult with the commanding officers of these ports on problems of administration in which his experience could be of service. This work took him to nearly every state in the union and enabled observation of many phases of management, production and engineering.

For almost two years prior to this, he was full time Consultant on Engineering Training to the Division of Training, City of New York. This involved the planning of programs of information for professional personnel engaged in all the services rendered by the City of New York to its inhabitants. All phases of engineering and profesional activity had to be studied and coordinated in the resulting programs.

During the interim between college graduation and the foregoing experience, he taught engineering at Cooper Union, in N. Y. City, New York University, and the University of Maine; spent a year and a half in various phases of steel fabrication with the Pittsburgh Bridge and Iron Works; several summers with surveying and construction gangs on highway construction.

In his new work Mr. Robbins is entitled to receive, and he will receive from all National and State Officers and members throughout the nation, the active cooperation, as well as the best wishes of all, for his success as Executive Director of the National Society of Professional Engineers.

Nevada Society of Professional Engineers Granted Charter From N.S.P.E.

Score another long step forward for Professional Engineers in the direction of their goal!

The Nevada Society of Professional Engineers is now a member of the rapidly growing family of State Societies affiliated with the National Society of Profesional Engineers.

The delivery of Nevada's Charter was officially solemnized at a meeting of the Society, at Las Vegas, on Friday evening, April 26th, at 8 o'clock. President Ritchie Lawrie, Jr., delegated to Robert Coltharp, one of the National Directors from the State Society of Texas, the honor of making the formal presentation.

When presenting the Charter, Mr. Coltharp extended the Greetings of President Lawrie and the Officers and members of the National Society of Professional Engineers. He expressed his conviction that the benefits of this affiliation will be very great, both for the Nevada Society and for the National Organization, during many years to come.

Mr. Coltharp also spoke briefly on the objectives and purposes of the National Society, and outlined many of the reasons why all Professional Engineers, regardless of what technical branch they may belong to, should stand together as members also of a united, over-all Profesional organization dedicated to the advancement of the public welfare, the securing of adequate recognition of the Profession of Engineering, as well as to the social and economic advancement of all Professional Engineers.

In forwarding the Charter to the Nevada Society, President Lawrie of the NSPE, expressed keen satisfaction

at being able to welcome the Nevada Society into the splendid Company of the State Societies going to make up the membership of National organization. He also tendered his personal greetings on behalf of the National Society of Professional Engineers.

Our Emergency Fund

Contributions to the Emergency Fund, in response to President Ritchie Lawrie, Jr.'s letter of February 7th, 1946, continue to come in. Some of these remittances are accompanied by letters commenting on the importance of expanding the Society's program of activities during 1946. Mr. Lawrie would like to write a personal acknowledgement to each Engineer who has written, but this is not possible. So, in the March and April issues were published the names and addresses of those whose letters had been received and read by Mr. Lawrie. Additional letters from the following Engineers have been received up to the moment of going to press:

Wilford L. Stork, The College of the City of New York, School of Technology, Convent Avenue and 139th St.

W. F. Burden, Washington, Indiana.

W. A. Fouhy, 1006 Park Avenue, Utica, N. Y.

Daniel Vaughn Waters, Flemington, N. J.

Richard O. A. Peterson, (New Jersey Society).

Byron H. Thomas, 42 Pinehurst Avenue, Dayton 5, Ohio.

Cary W. Evans, Grant Building, Atlanta 3, Ga.

Gustave Seegmueller, c/o A. J. Hoffman Construction Co., Ltd., Evansville, Indiana.

E. K. Haas, 3655 Monroe Avenue, Pittsford, N. Y.

Henry P. Barnes, 15070 Cruse, Detroit, Michigan.

Stephen Royce, Crystal Falls, Mich.

Stephen D. Mayzel, 260 Morton Avenue, Albany, N. Y.

W. L. Thrailkill, 1107 W. 7th Avenue, Spokane, Washington.

Get Them To Register

It is not too much to say that the most important job of the local Chapters of this Society, is to do everything possible to encourage registration. The registration movement is strengthened by the addition of every new registered engineer. Furthermore, when every eligible engineer in West Virginia is registered, the problem of enforcing the State Registration law will be greatly simplified . . . From an Editorial in the April issue of the West Virginia Engineer.

DISTRICT OF COLUMBIA

A very interesting program was arranged for the March meeting, sponsored jointly by the AIEE, ASCE, ASME and the District of Columbia Society of Professional Engineers. The speaker was N. R. Danielian, a consultant on the St. Lawrence project, who spoke on the topic, "What the St. Lawrence Project Means to the United States and Canada." This meeting was in the Auditorium of the Commerce Building, and the lecture dealt with the basic engineering problems involved in the construction and development of Niagara Falls for navigation and power. As part of this program the engineers had an opportunity of viewing the complete model of the Niagara Falls development which was on display in the lobby of the Commerce Building. At the April meeting, President Frederick W. Hill rendered a report on the President's Conference of the National Society of Professional Engineers, which met in Columbus, March 28-30. The Nominating Committee also presented its slate for nominees for officers of the DCSPE for the year 1946.

GEORGIA

"Members of this Society received a letter in February from the National Society of Professional Engineers outlining the "Program of Policy" adopted by the National Society's Board of Directors and asking for personal contributions of from $5 to $25 to help pay for the 1946 cost of this program of expanded activities.

"The Georgia Society's Board of Directors, at its meeting on March 8th, adopted a resolution endorsing the National Society's 'Program of Policy.'

"I would like to urge every member to send his contribution promptly to the headquarters of the NSPE, National Press Building, Washington 4, D. C.

"It should be pointed out that additional funds will be available to the National Society in 1947 and that this contribution is needed in order to initiate the program immediately.

"If you have not taken any action on this request, won't you please refer to the National Society's letter and Program, study them carefully, and then mail your contribution without delay?"—Letter by Carl W. Evans, President.

Atlanta's building codes will be studied by AIA, GSPE, Association of General Contractors, and the Underwriters Association with a view to rewriting and combining a multiplicity of codes, some inadequate, others antiquated, into one code enforced by a central authority such as a Department of Public Safety. This action resulted from the February meeting of the Atlanta Chapter of the GSPE.

The Bowman progress report on the work of the minimum salary schedule committee received enthusiastic approval. It consisted of a proposed merit rating sheet from which to evaluate the education, experience, responsibility, and general value of an engineer for purpose of salary scheduling. The plan puts the engineer on the "curve" plotted between credit points and salary dollars.

For the Atlanta Chapter Education Committee, Chairman M. J. Blew, Colonel, SNC, has outlined a program of varied educational activities. To a large committee, representing all branches of engineering in the Atlanta area, Colonel Blew suggests: ". . . each committee member review the scientific and engineering periodicals and reports pertaining to his particular field and select outstanding editorials or articles pertaining to the social and economic welfare of the engineers in his field. Second, to select material and prepare a short and concise article telling of the activities of men in his field in the Atlanta area or in Georgia. An attempt will be made to have these articles published. A third function of the committee will be to have reproduced in various technical publications, papers, and society notes, material concerning the GSPE, registration of engineers, and news of the Atlanta Chapter activities. A fourth contribution that can be made by committee members would be the dissemination of information to local engineers in their particular field and the preparation of a list of names of qualified engineers in their field."

ILLINOIS

Steps were taken on April 1 to meet the legal requirements to change the name of the Society in the incorporation charter by inserting the word "professional" in the former name of Illinois Society of Engineers.

The new constitution of the Illinois

Society of Professional Engineers stirred up some healthy discussions, mainly on the subject of too many membership grades. This also touches the problem of "engineers in training," to which classification there is some objection.

The applications for registration are still coming in slow. So far about 5,000 applications have been approved and about 150 turned down as the applicants could not be classed as engineers. The dead line for registering under Sec. 15 (the grandfather rule) is midnight July 19, 1946.

James A Colvin, manager of Northern States Power Company's power production and system operation, and other Northern States Power engineers, were the hosts at a joint meeting of the local ASME and AIEE on a recent inspection tour of its High Bridge station with its new 50,000 K.W. generator. J. B. Jardine, President of the North Dakota Society of Professional Engineers, was an interested participant.

We have a fine set of officers to help us carry out our many projects this coming year. First, congratulations to S. L. Stolte on his election to the presidency of the Federation. Then our best wishes to H. E. McWethy as he assumes duties of MAPE president, taking up the good work of N. T. Rykken.

INDIANA

J. R. Cooper has been appointed bridge engineer of the Indiana State Highway Commission, following the resignation of Fred Kellam, who has accepted a position with the Public Roads Administration in Chicago.

The Indiana County Surveyors Association, at its meeting in January, elected Asher W. Gray, president; Edward Nesbitt, Renesselaer, James Chase, Logansport, and Charles Butler, Scipio, vice-presidents; Paul R. Brown, Indianapolis, secretary, and Alfred Ellison, treasurer.

MASSACHUSETTS

Over two hundred architects and engineers attended the Governor's dinner given in honor of Governor Maurice J. Tobin. The dinner was sponsored by The Boston Society of Architects, The Massachusetts State Association of Architects, and The Engineering Societies of New England. Professor G. Holmes Perkins, Chairman of the Department of Regional Planning at Harvard University, was the guest speaker and discussed *Long Range Planning*. Governor Tobin addressed the group on *Problems of the Commonwealth*.

Professor Perkins emphasized two obstacles facing long range plans in the United States: (1) The price of land and (2) the designation and coordination of authority. Switzerland has long made it a practice to acquire land ahead of actual need, whereas we have waited until the need is urgent and then are forced to acquire land at prevailing prices. Urgency in city planning usually means that congestion within the city has reached a point where it is impossible to procure large areas for new plans or redevelopment projects. Many times small undesirable plots are purchased and then at such inflated prices that the plot must be used intensively to offset the original cost.

Governor Tobin advocated the restoration of the Metropolitan District Planning Commission that the Metropolitan area might be properly harmonized in all future planning. In speaking of the many urgencies facing the State at present, he emphasized the need for extensive road building plans to met the rapidly increasing traffic problems. Some old and acceptable highway plans for Boston and vicinity could well be revived and pushed to completion.

MINNESOTA

Every MAPE member is gratified at the success of the Victory Conference. The speakers' program was excellent, and the engineering exposition with its attendance of over 75,000 local and out of town citizens has helped marvelously to place the engineer in his proper light before the public. The Federation did a grand job and is to be congratulated. Congratulations also are due its attractive Convention issue of The Bulletin.

George M. Shepard, chief engineer in the department of public works of the City of St. Paul, has been made chairman of the Board of Registration for Architects, Engineers and Land Surveyors. He succeeds the veteran F. W. McKellip, who remains a member of the Board.

This is Cooperation

Mr. H. E. McWethy, the newly elected President of the Minnesota Association of Professional Engineers sends the following letter to his membership, under date of March 11th, 1946:

"Dear Fellow Engineer:

"Under date of February 4 you were sent a letter from Mr. Ritchie Lawrie, President of the National Society of Professional Engineers. With this letter there was enclosed a Program of Policy as adopted by the Board of Directors of NSPE on December 6, 1945.

"I think you will agree that this Program represents an important forward step. It is an indication that under a new administration our national organization proposes to assume its proper place as the over-all representative on the national level of the professional engineer and as the official guardian of his social and economic interests and welfare. We are all looking forward with interest and high expectation to the execution of a vigorous policy of active participation in national affairs where the interests of engineers are concerned. The purpose is to make the authoritative impact of an integrated and unified profession effectively felt where it will do the most good.

"This calls for more money, and it is needed now—we must not wait till 1947. Therefore we have Mr. Lawrie's appeal for voluntary contributions to be sent to national headquarters. The money thus secured will tide the program over until the new dues go into effect in 1947.

"It is not my purpose to reiterate Mr. Lawrie's arguments. His letter speaks for itself. I am merely reminding you that MAPE is a component society of NSPE and that we are expected to do our part. I have no fear of the results. MAPE will respond nobly to this challenge. A record of receipts by States will be kept by the Washington office and we will be advised periodically.

"I urge you to participate liberally in this important enterprise; and DO IT NOW."

Fraternally yours,

(Signed) H. E. McWethy,
President.

MISSOURI

Engineer F. C. Woermann, of St. Louis, has been appointed a member of the Washington University Research Foundation. Mr. Woermann is a registered engineer and a member of the MSPE.

Several of the engineers in the Western Chapter have changed positions:

H. C. Newmeyer is with Morrison Knudsen Company.

Grant D. West with Reno Construction, and

J. C. Schmidt with Burgwin, Geiger & Schmidt.

Engineer L. A. Weeks is a candidate for the Office of Street Commissioner.

Col. Joseph V. Vollmar, a registered engineer in St. Louis, has been appointed by Mayor Kaufmann to membership on the Board of Commissioners of the St. Louis Housing Authority.

C. M. Lytle and R. E. Welch are taking an active part in the excellent service which the Technical Societies Council of Kansas City is rendering to Scientific and technical development in the Kansas City area. The Council was organized six months ago to foster better relations between the various technical societies and services and to promote the welfare of the various professional engineering interests.

NEW YORK

Dr. Stephen J. Zand, a resident of Forest Hills and an aeronautical engineer for the Sperry Gyroscope Company, talked on the subject of "Strategic Bombing of Germany" before the Queens County Chapter of Professional Engineers at the Jamaica Y. W. C. A. Building, 87-80 153rd Street, on Thursday evening, March 28th.

Engineer Zand, as well as being a member of this chapter, is a Fellow of the Institute of Aeronautical Sciences, a Fellow of the Royal Aeronautical Society, a past Vice President of the Society of Automotive Engineers and was attached to the Intelligence Division of the Air Service Technical Command where he conducted an investigation and analysis of our bombing effort.

Albany Chapter

President Joseph Brady has appointed Clayton A. Miller of the Albany Chapter as State Chairman of the Membership Committee to fill the unexpired term of the present incumbent and Engineer Miller has sent out a message regarding the drive to Chapter Presidents and Committee members. Your State Society has grown in active membership and expects to reach a total of 2,500 by 1947. Recent growth is shown as follows: (April 1943) 1,696 members (January 1946) 2,123 members. This is an annual increase of 9 per cent. Albany Chapter has done an excellent job so far this year.

Your Secretary has a list of job vacancies recently received from State Headquarters. Salaries range from $3,640 to $5,180 annually and positions are in New York City.

Registration in New York

Dr. Irwin A. Conroe, Assistant Commissioner of Education of the State Education Department replied to an inquiry on this subject as follows:

"It is not necessary to register with this Department while you are not practicing your profession in the State of New York. Failure to register when not so practicing does not affect the validity of your license."

"Whenever, in the future, you plan to commence or resume practice in this State, you should notify this office at once and apply for bi-annual registration." Upon compliance with the first paragraph of Dr. Conroe's letter, the engineer's record card at the State Education Department is placed in the inactive file. Upon making application for registration, his name is returned to the active file.

Erie County Chapter

At the March meeting of the Chapter, Edward J. Nunan, treasurer of the Niagara Frontier Planning Association discussed the "New York State Thruway," and how it affects the city of Buffalo. With the aid of maps, Mr. Nunan indicated the several routes being advocated by local groups, as well as the one selected by the State Department of Public Works. He compared the advantages, disadvantages and costs of these thruway routes and the branches through and adjacent to the city of Buffalo.

The following resolution was adopted unanimously: "Be it resolved that the Erie County Chapter of the New York State Society of Professional Engineers hereby expresses its confidence in the ability of the New York State Department of Public Works to select the most satisfactory route for the proposed construction of the New York State Thruway, locally known as the 'Erie-Ontario' Thruway, and the branch known as the 'Niagara' Thruway leading to Niagara Falls."

The April 22nd meeting was sponsored jointly by the Niagara and Chautauqua-Catteraugus Chapters. Engineers from the Socony-Vacuum Ail Company presented a demonstration and lecture on the "Story of Gasoline."

Membership Drive

A state-wide drive for new members is in progress and names must be in at State Headquarters before April 20 to count in the "President's Gavel Contest." The Annual Convention of the State Society will be held at Hotel New Yorker in New York City on May 3-4, 1946, at which time the State Membership Committee will report on the contest. The Chapter showing the greatest percentage increase in accredited members for the twelve months period will be awarded this handsome gavel which was donated in 1944 by Richmond County Chapter and which is now held by Broome Area Chapter.

The annual meeting of the Bronx County Chapter of Professional Engineers was celebrated this year with a dinner and the presentation of testimonial scolls to the nine surviving past presidents of the eleven who had officiated since the Chapter's inception in 1926.

The meeting was held on Thursday, March seventh, at the Concourse Plaza Hotel. Dinner in the Main Dining Room of the hotel preceded the meeting.

The guests of honor included Engineer James A. Brady, President of the State Society, and Commissioner of Public Works of Westchester County; Engineer Arthur V. Sheridan, Past President of the State Society and of the National Society and Commissioner of Bronx Borough Works and Engineer Frank J. Duck, Executive Secretary of the State Society.

In addition to the scroll presentation, the annual installation of officers took place at this meeting. Commissioner Brady presented the presidential scrolls and Commissioner Sheridan in-

ducted the newly elected officers into office. State Secretary Duck discussed some of the legislation pending at Albany which affects the engineering profession.

The newly elected officers are Charles F. Giraud, President; Joseph A. Brunner, Vice President; Sylvester W. A. Murphy, Secretary; and Harrison Blankstein, Treasurer. The newly elected directors are Frederick Caiola, Ernest F. Cox, Gustave Gottron and Alexander Haring.

The past presidents of the Bronx Chapter to whom scrolls were presented are: William M. Husson, Alexander Haring, Joseph F. Lamb, Raymond J. Van Wagner, Rudolph C. Lang, William L. A. Arctander, Joseph B. Diamond, Charles F. Giraud and Solon Friedeberg.

OHIO

The 60 NSPE Directors and State Society presidents in Columbus on March 29-30, attended the Franklin Society Chapter meeting on Friday night. Fred I. Rowe was the speaker, and a good talk it was too. The Chapter boasted that it has not only the largest membership of any Chapter in Ohio, but the largest in the U.S.A.

The Miami Chapter finds that the Wednesday noon luncheons are really giving life to the Chapter. Every Wednesday 30 to 40 Professional Engineers meet for a really instructive and enjoyable meeting. The local papers carry articles on all meetings. Why cannot other Chapters go and do likewise?

The Ohio Society of Professional Engineers is getting wide publicity in all parts of the state in connection with its successful injunction suit against the Cleveland outfit which was charged with the misuse of the name "Engineer."

The North Central Chapter has a new slogan that seems to "click." It is, "If we do our best individually, we will do better as a Society." Let us cooperate to the utmost to make 1946 a year of progress."

Engineer Dee, Akron Chapter Trustee, was elected the permanent chairman of the newly formed Akron Council of Engineering and Scientific Societies.

The Mahoning Valley Chapter publication was added to make a total of nine Chapter publications in Ohio. The first issue came out in April.

Executive Secretary Lloyd Chacey reports an increase of 72 Professional Engineers in the Ohio Society of Professional Engineers, bringing the total to 2,877

PENNSYLVANIA

E. A. Holbrook has been appointed a member of the NSPE panel, Joint National Council of State Boards of Engineering Examiners Committee, for 1946.

Announcement was made on March 5 by the Allegheny County Board of Commissions of the appointment of a County Sanitary Authority Board to deal with the county-wide sewage disposal problem. The five-member board includes two professional engineers, two lawyers and one business man.

In the December 1945 number of the *Pittsburgh Engineer* we published the astonishing statement of Reginald M. Atwater, M.D., that there are only 10 engineers employed in public health service in the whole state of Pennsylvania, but that, according to the standards of the American Public Health Association (of which Dr. Atwater is Executive Secretary) 100 engineers should be employed by public health agencies in Pennsylvania.

Our article was reprinted in the February issue of *The American Engineer*. On March 6 it was announced in Harrisburg that 16 engineers had been added to the staff of the State Sanitary Water Board. Democratic State Chairman J. Warren Mickles critically said that the Board probably needs 60 more engineers, as "it is positively submerged beneath an accumulation of unchecked plans—submitted by municipalities and coal companies for stream pollution abatement."

The Pittsburgh Engineer again respectfully recommends that PSPE State officers and local chapter go into this question. One point that should be investigated is whether these "engineers" being appointed are really Engineers.

The Juniors-Engineer's Club of Philadelphia, an affiliate or Engineers-in-Training group, meets on Thursday of each month at the Engineers' Club. The attendance and membership is growing steadily.

The Philadelphia Chapter of PSPE listened to an intensely interesting and timely address at its meeting on April 4th. The topic was "Technical, Social and Political Problems of Atomic Energy." The speaker was Parke H. Miller, Jr., Ph.D., Director-Department of Physics, University of Pennsylvania. Dr. Miller finds plenty of "problems" involved in this newly available force. He feels that the course of world events has probably been altered by recent developments in the field of atomic energy.

On April 23rd, the Philadelphia Chapter was co-sponsor with the American Society of Mechanical Engineers, The Engineers' Club and various other technical and scientific organizations, at a Centennial Celebration in honor of the birth of George Westinghouse.

The Annual Meeting of the Philadelphia Chapter, combined with the Annual Regional Conference was held on May 2nd. The regular monthly meeting of the Executive Board of the Pennsylvania Society of Professional Engineers was held in Philadelphia on the same date.

The following boost for President Ritchie Lawrie, Jr., and his plan to get the enlarged activities of NSPE going this year, was contained in the March issue of the Harrisburg Chapter Bulletin:

"The 1946 program of the National Society of Professional Engineers is a gigantic undertaking to expedite the progress of the organization. The ultimate accomplishment of the plan will advance immeasurably the prestige of the professional engineer. It is a bold step in the right direction and its conception and execution required the vision and fortitude of master strategists. To make it a success will demand energetic prosecution by our executives and the complete cooperation of every professional engineer in the entire nation.

"As President of the NSPE Engineer Lawrie has a tremendous responsibility upon his shoulders. He has the ability and initiative to make the plan

a success, but he must have the entire Society behind him. Inasmuch as he is a Pennsylvanian and a Charter Member of our own Harrisburg Chapter, it is our obligation to support him in every way. Let us make the largest individual contribution of which we are capable and let us exert every effort to induce registered professional engineers to join our Chapter, thereby gaining the necessary numbers and the financial support to guarantee ultimate success."

WEST VIRGINIA

Ray Cavendish has been appointed to the position as state maintenance engineer, according to an announcement by Road Commissioner E. L. Worthington. Mr. Cavendish fills the vacancy created by the elevation of E. L. Worthington to be Commissioner, following the resignation of Earnest L. Bailey.

Other shifts include: John Gillespie, who has been assistant to the chief engineer in Charleston since his release as a lieutenant commander in the Navy, to succeed Cavendish in Moundsville. E. W. Ripley, Jr., former district one engineer, succeeds C. L. Churchill, who will become engineer director of the prison labor division. A. B. Dick, resident engineer of the Parkersburg area has been moved to the Moundsville district, and Frank Baritell, transferred from Moundsville to Parkersburg, as resident engineer.

James Hyslop, operating vice-president of the Hanna Coal Company, had this to say of the possibilities for industry in the Ohio Valley, speaking at a joint dinner meeting of the Northern Panhandle Chapter and the East Ohio Chapter of the Ohio Society recently: "Coal is the key industry of the area, and we have unlimited resources of it. With the advent of modern mining and cleaning methods, many of the disadvantages that coal from this area suffered in the past, have been overcome. Also there is a likelihood of liquid fuel being produced from coal in the future."

Mr. Hyslop attributed the remarkable development in power plants being experienced by the Ohio Valley Industries, to the adequate water supply provided by the Ohio River. In conclusion he said, "the trend is definitely toward an increase in power consumption."

What's New For Engineers

Requests for further information concerning any item mentioned under this heading will be promptly referred to the manufacturer. It would be appreciated if inquiries be addressed on professional or company letterhead.

Send Inquiries Direct to American Engineer, #6 Church Street, New York, N. Y.

STEAM DETERGENT CLEANING

Of increasing interest to construction engineers, superintendents, foremen and others responsible for maintenance cleaning of machinery and equipment are the savings in time, money and effort being effected by steam detergent cleaning methods. A booklet on this subject has been published recently.

Described in this booklet are many applications of steam detergent cleaning for (1) cleaning machinery equipment and parts for subsequent repair and overhaul, (2) preparing equipment surfaces for repainting or refinishing, (3) cleaning equipment too large for tank immersion, or where suitable tanks are not available, (4) paint stripping. Emphasis is placed on steam detergent cleaning as a simple, fast method of safely removing grease, oil, dirt, sand and other deposits from all types of equipment through the combination of mechanical force, controlled heat and effective detergent action of recommended materials. Savings of nearly 50% of former costs and over 75% of time effort are reported on some cleaning operations using this modern method.

For further information address American Engineer, reference No. 485.

AUTOMATIC FLOW REGULATOR FOR HYDRAULIC SYSTEMS

Now in production with an inexpensive precision unit the manufacturer announces perfect hydraulic control in a space only a fraction larger than the line in which the unit is used. Available in all pipe sizes the new Hydraulic Flow Regulator offers unlimited flow in one direction and pre-determined rate of flow in the opposite direction. Hydraulic machine tools and lift devices can be perfectly controlled to predetermined speeds and insured against the sudden release of hydraulic pressure.

A descriptive circular describing the Automatic Flow Regulator and other hydraulic engineering facilities is available on request.

For further information address American Engineer, reference No. 486.

GASOLINE HAMMER PAVING BREAKER

A new style, completely self-contained, Gasoline Hammer Paving Breaker type of demolition tool is now on the market.

This hammer is comparable in power to the larger-sixed compressed air Paving Breakers—weighs 96 pounds—is arranged for easy operation by one man—and uses moil points, narrow chisels, gads, wide chisels, frost wedges, clay spades, backfill tamping tools, asphalt cutters, sheathing drivers or ground rod driving tools, etc., all with 1⅛" x 6" shanks.

Throttle control of the blow permits placing the tool on the spot desired to be worked, without jumping around. With a solid star drill, and using water to flush the cuttings out of the hole, the hammer will drill rock to a depth of 30".

The major advantage claimed for this new tool is that it is completely, 100% self-contained—and does not require an air compressor, air hose and fittings, ignition battery, ignition coil and heavy cable, or any other source of power or accessory.

In principle, it consists of a 2-cycle gasoline engine in an inverted position—with two pistons, one an engine piston and one a hammer piston. The engine piston is connected to the crankshaft at the top of the hammer and drives the flywheel ignition magneto, and a fan for forced air cooling. Starting is by a rope pull, the same as any outboard engine.

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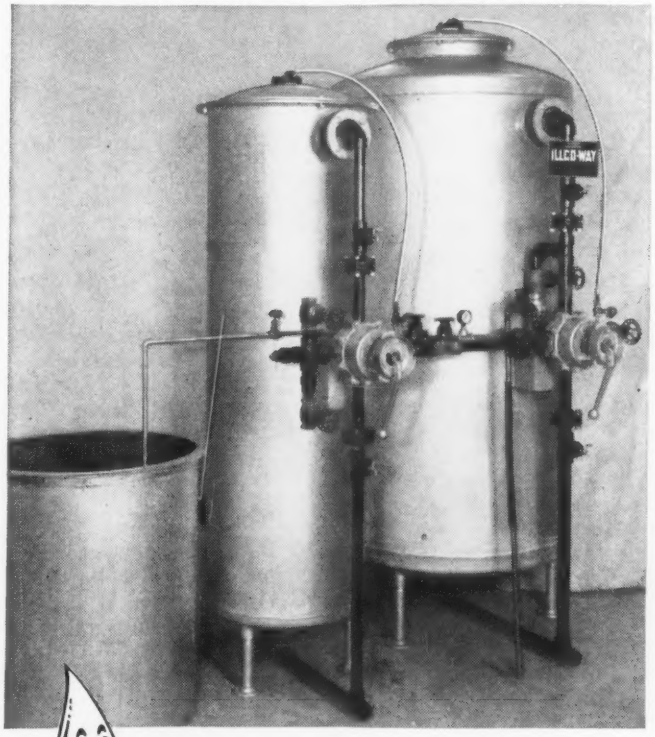

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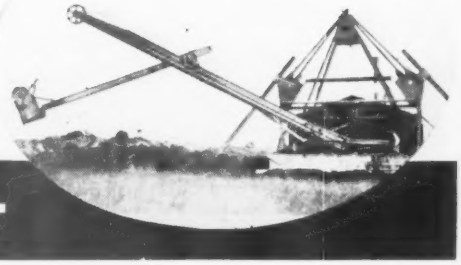

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